pcpanl.v2.2.0 upgrade for RTMA/URMA

Last update of this doc: 3 Dec 2015

Stage IV/URMA:

- For grid points inside of an RFC's domain, if input from that RFC is late or missing, we will no longer use neighboring RFCs' data to fill in.
- Areas outside of the RFC domains (except for Gulf of Mexico and the Atlantic) are set as no data/missing
- Areas in the Gulf of Mexico and off the Atlantic Coast are filled in with data from the RFCs, as before
- WGRFC domain expanded to part of Mexico
- Coverage for the Great Lakes will come from specific RFCs assigned to the Lakes (currently it is the average of coverage from all neighboring RFCs)
- For hourly Stage IV, CNRFC input is excluded (as is NWRFC, which does not provide hourly input)

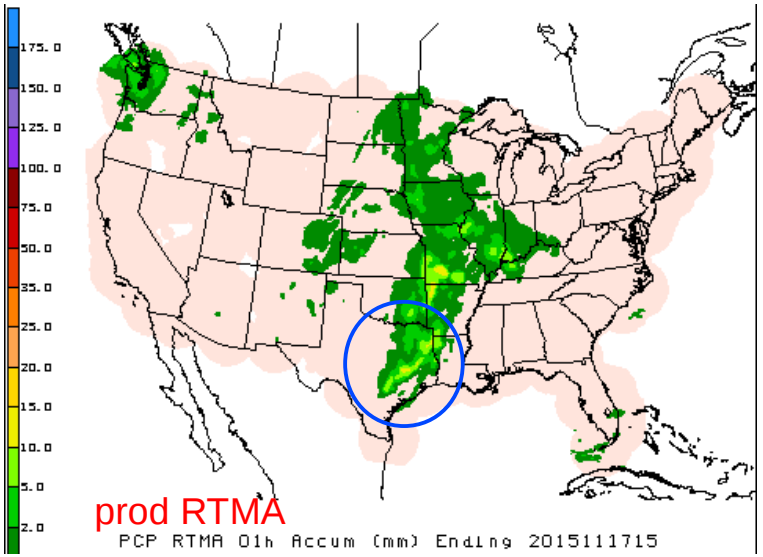
Stage II: gross error check of gauges (reports tossed above limit) increased from 1"/hr to 5"/hr

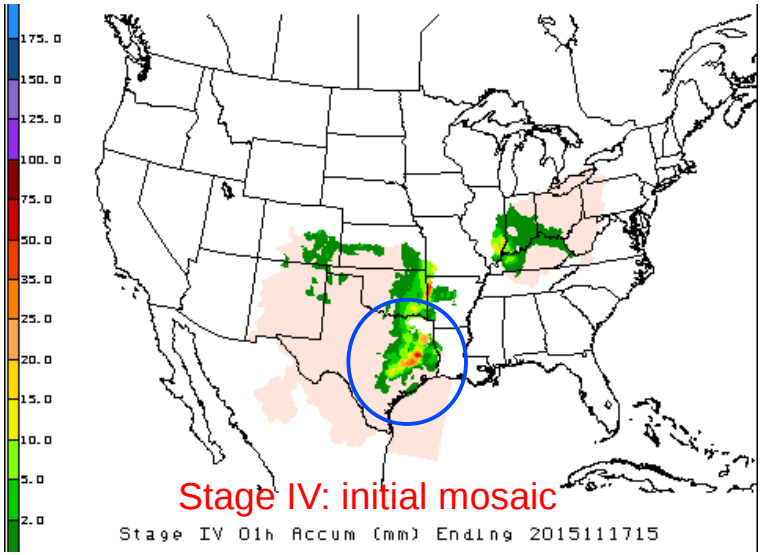
Precipitation RTMA: Stage IV hourly is used as primary input for RTMA, supplemented by Stage II hourly

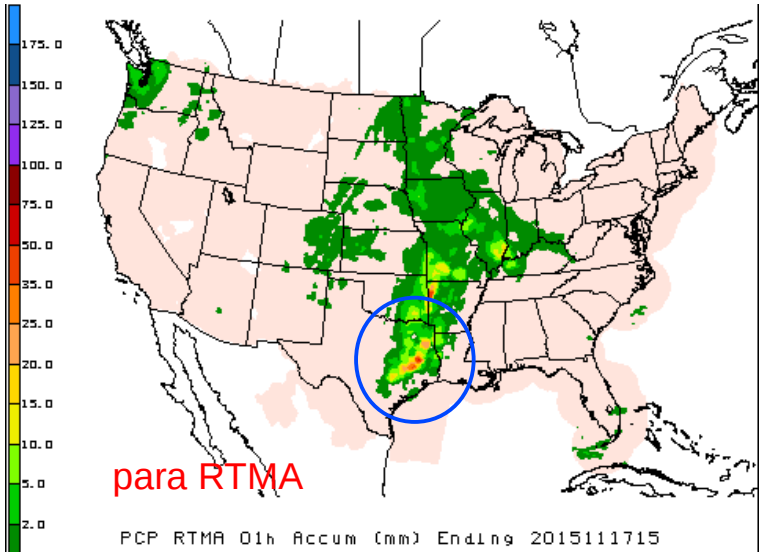
Additional info/link to parallel data online:

http://www.emc.ncep.noaa.gov/mmb/ylin/pcpanl/

RTMA example: hourly accum ending 15Z 17 Nov



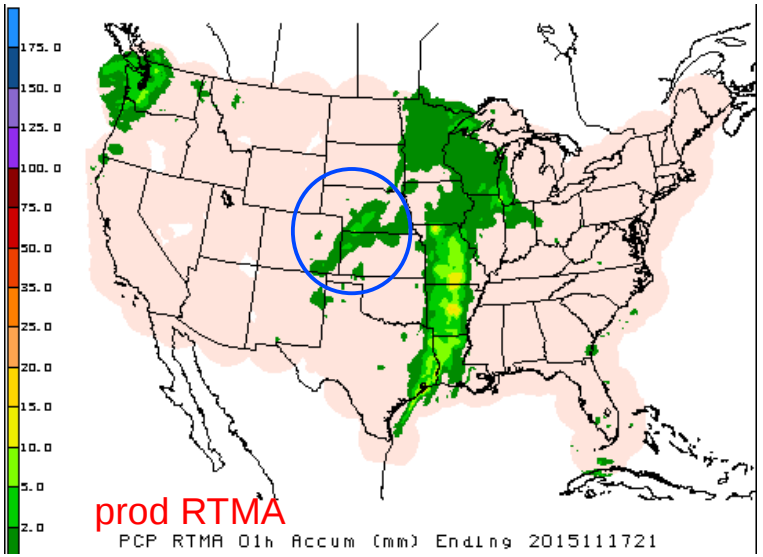


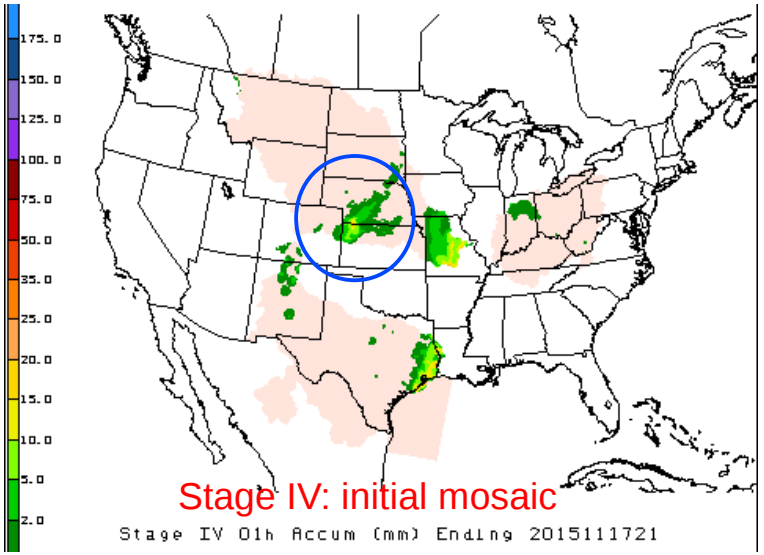


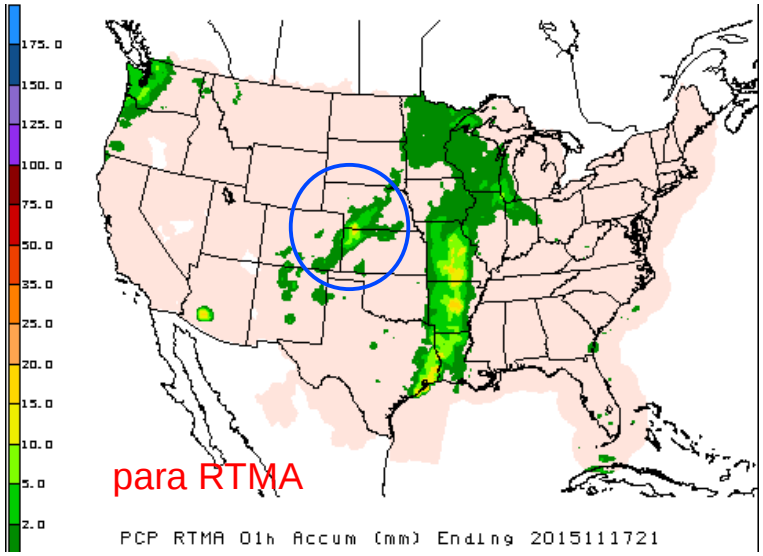
Current production RTMA: use early Stage II (from radar and gauge data received at NCEP by 33min past the top of the hour).

Upcoming RTMA: use Stage IV (from regional QPEs sent by RFCs by 33min past the top of the hour), supplemented by early Stage II.

RTMA example: hourly accum ending 21Z 17 Nov

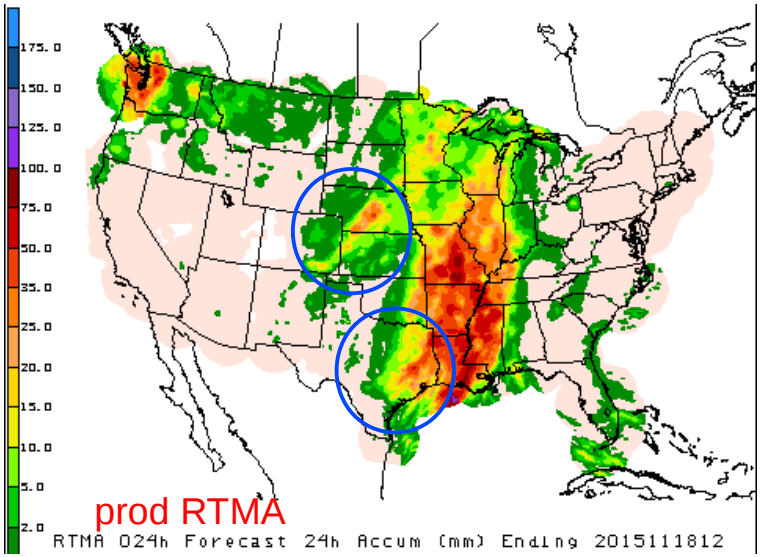


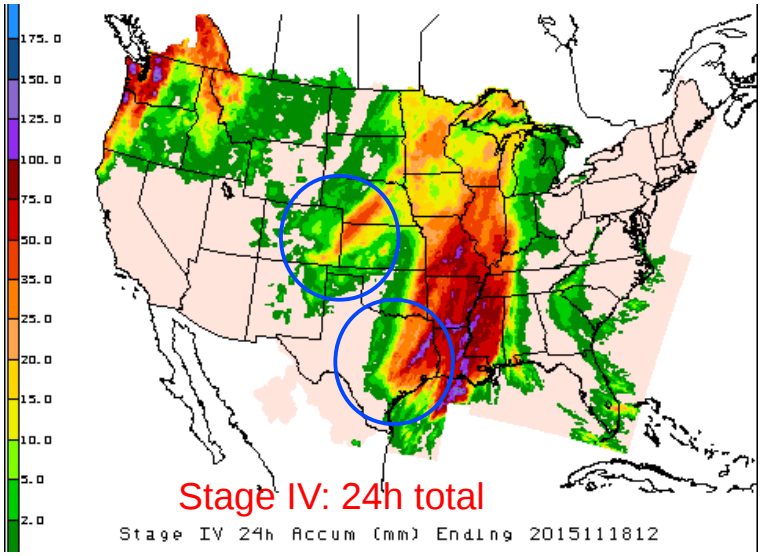


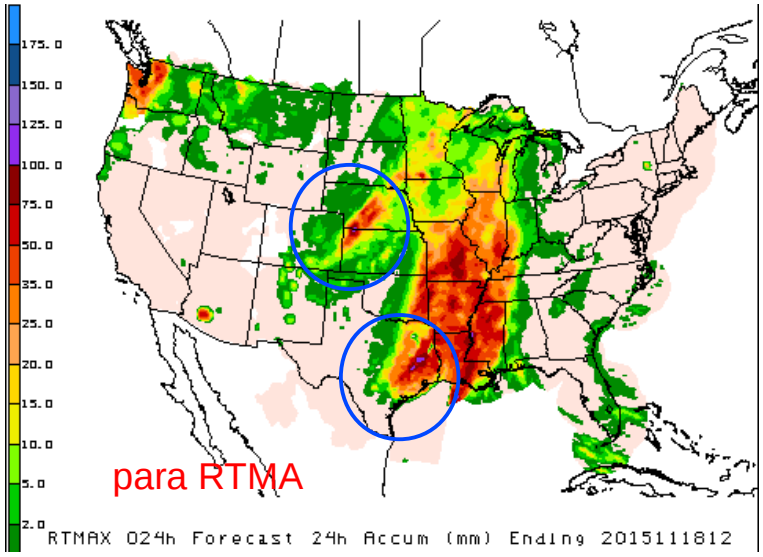


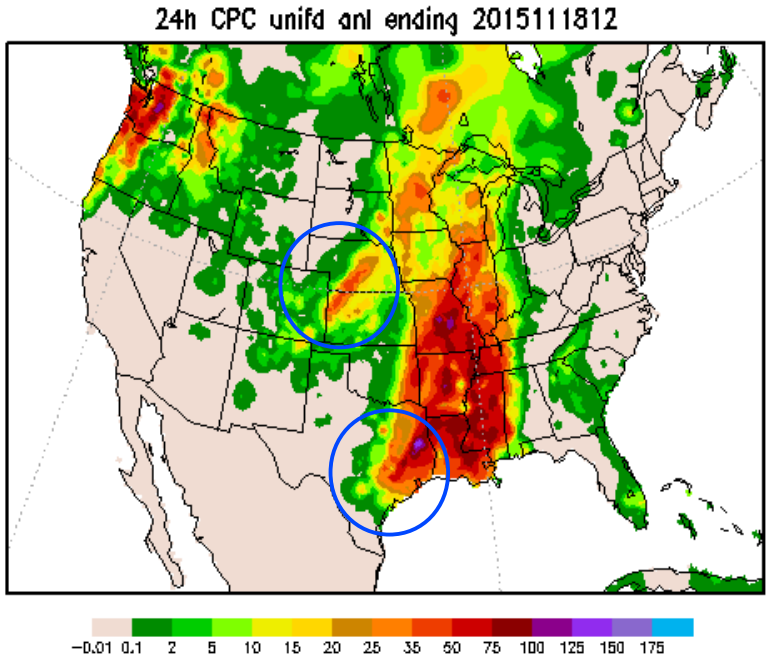
Note on the precip bull's eye in AZ:
A METAR gauge (GXF 32.88N, 112.71W, outside of Gila Bend Air Force Auxiliary Field, AZ) was reporting spurious precip, sometimes over 1”/hr. The parallel Stage II/RTMA increased gauge gross error check cap from 1”/hr to 5”/hr, and GXF is not a NWS or HADS site and not checked by the daily gauge QC program. We do toss out some of the Spurious reports when the weather condition is CLR in the METAR report.

24h accumulation ending 12Z 18 Nov 2016

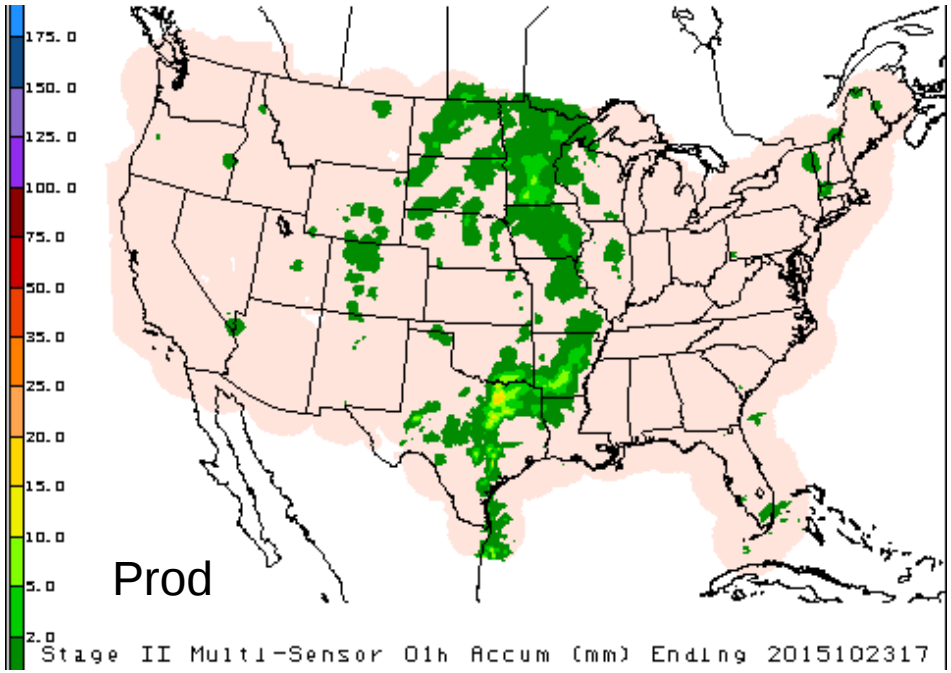


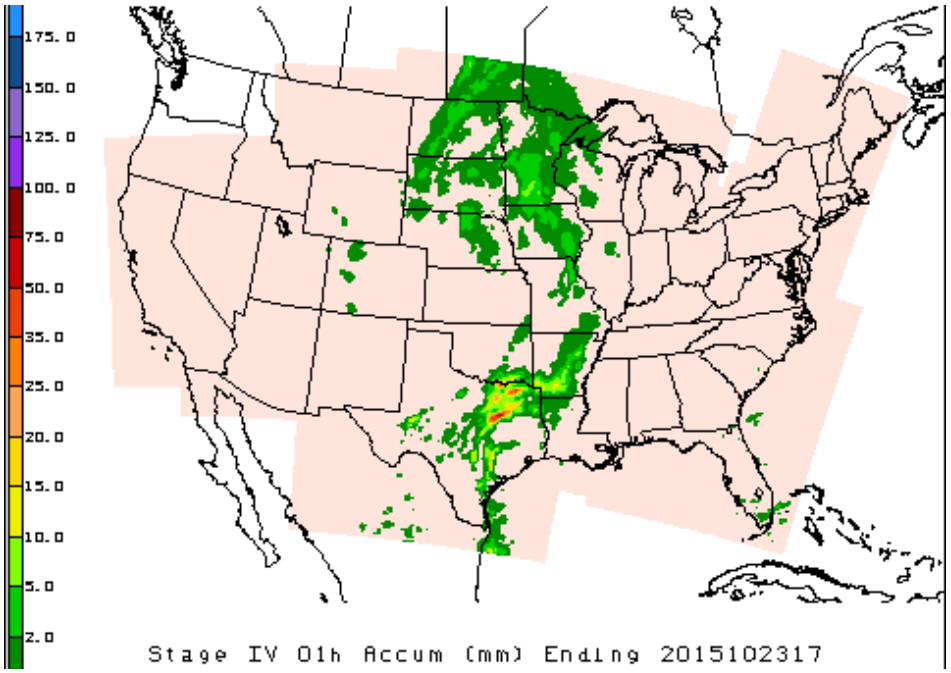


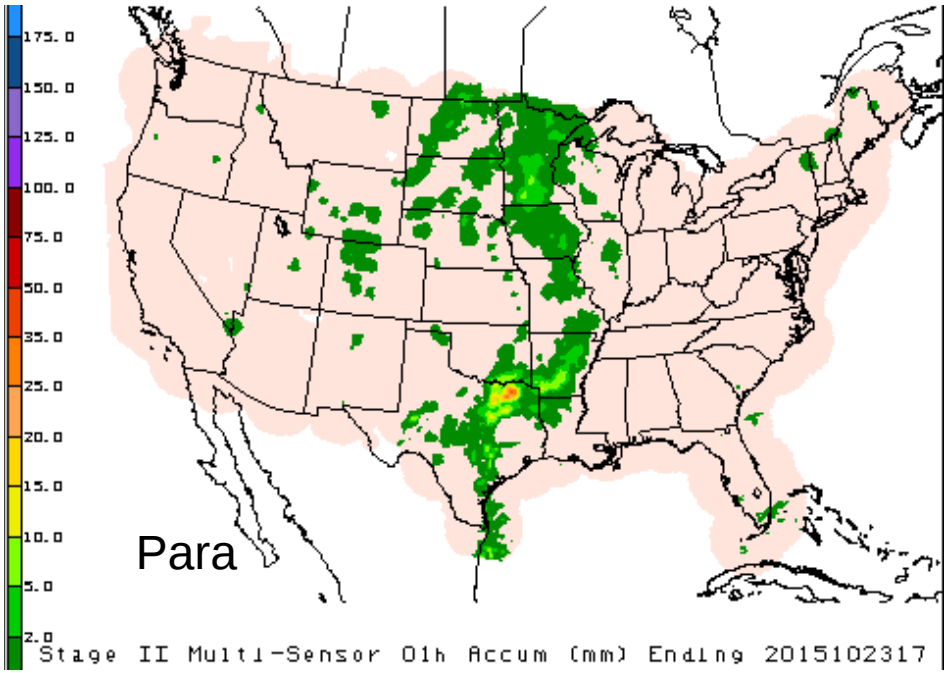




Stage II/RTMA gauge gross QC change: 1 of 2

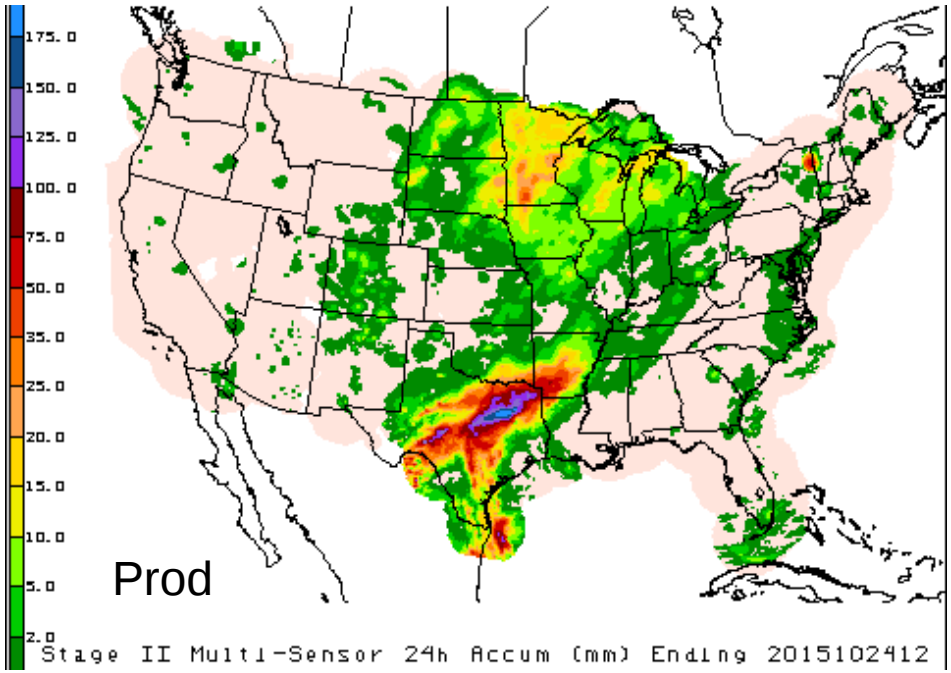


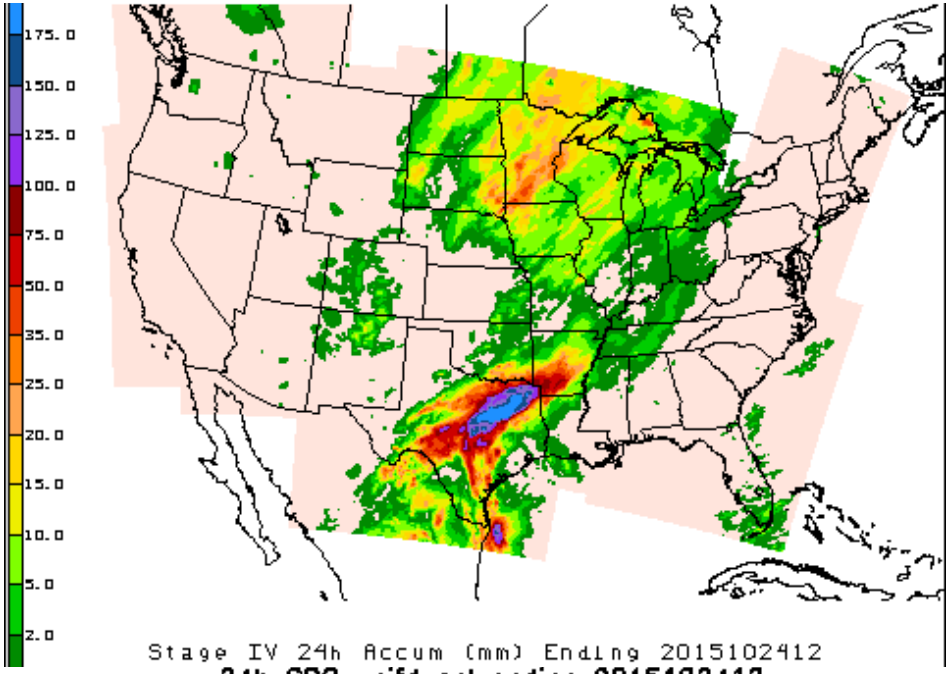


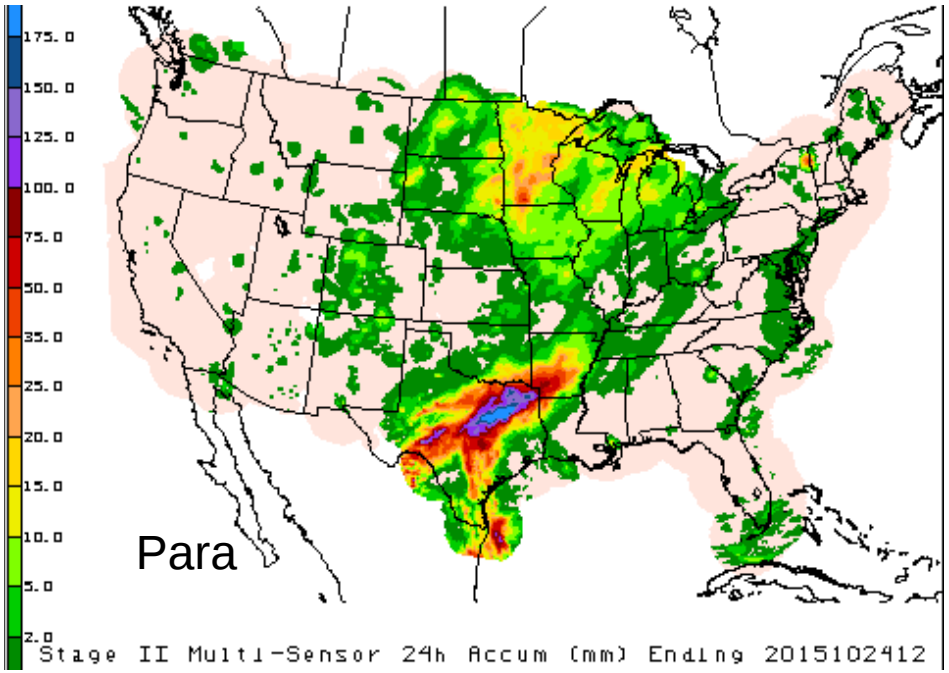


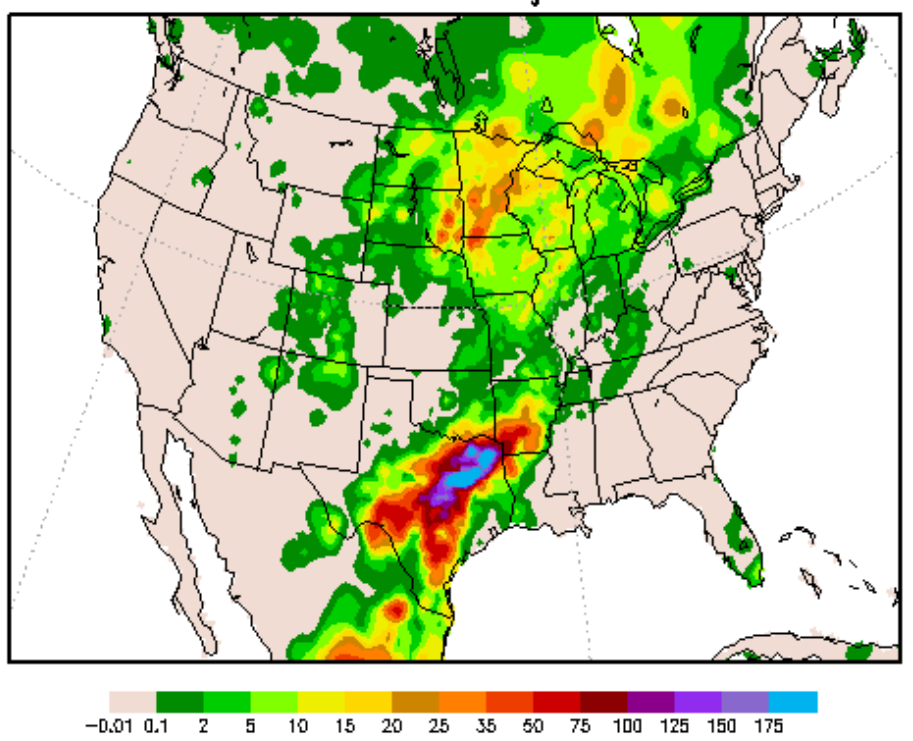
1h ending 17Z 20151023. Prod tosses out gauge reports > 1”/hr. This gross error check cap is changed to 5”/hr in para.

Stage II/RTMA gauge gross QC change: 2 of 2
24h ending 12Z 20151024



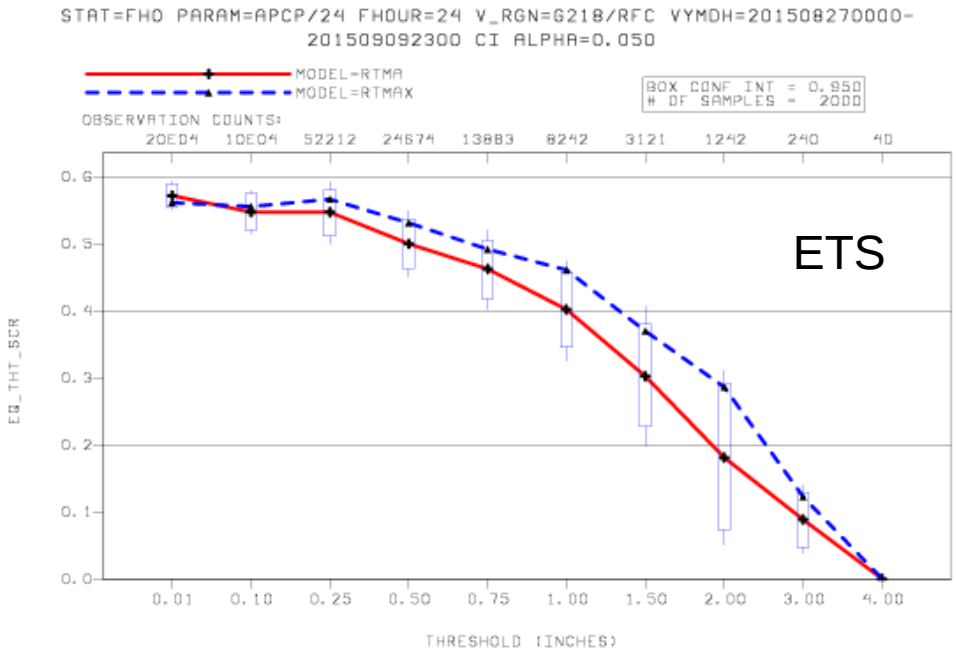


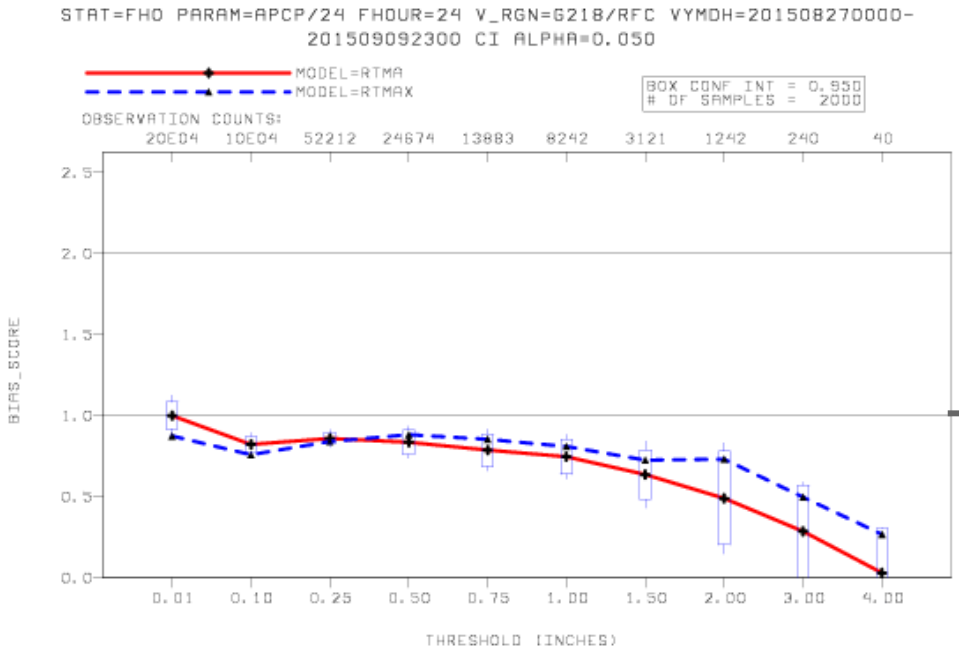




RTMA *vs.* RTMAX, 27 Aug - 9 Sept

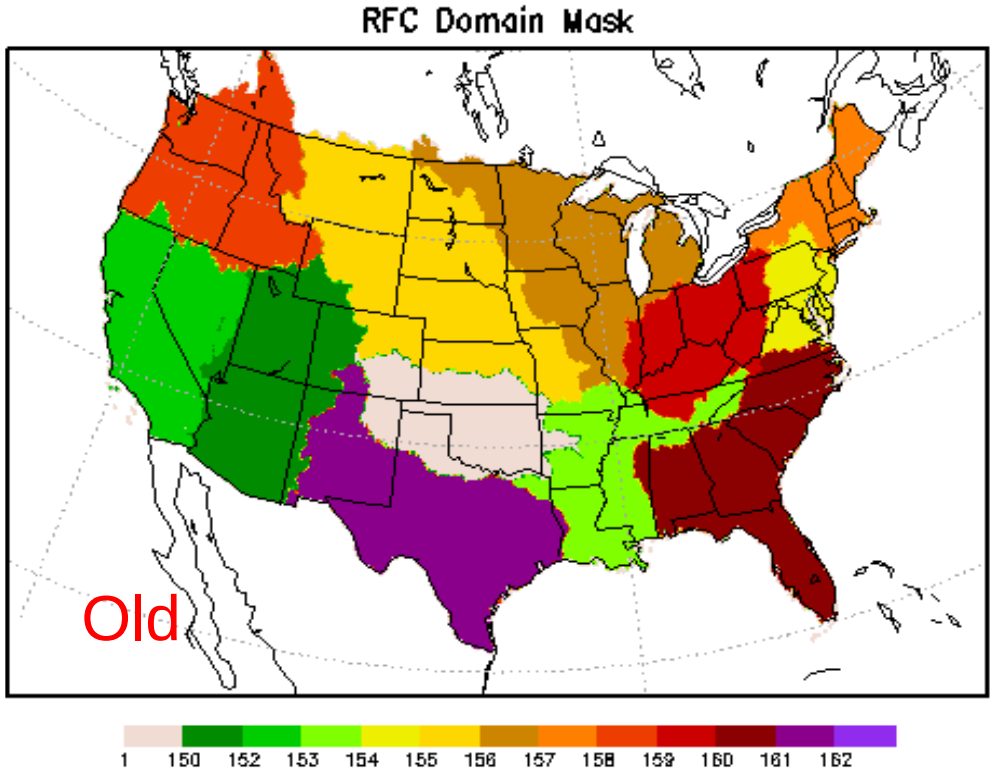
Verified against the CCPA, the parallel RTMAX has higher ETS and its bias is closer to 1.

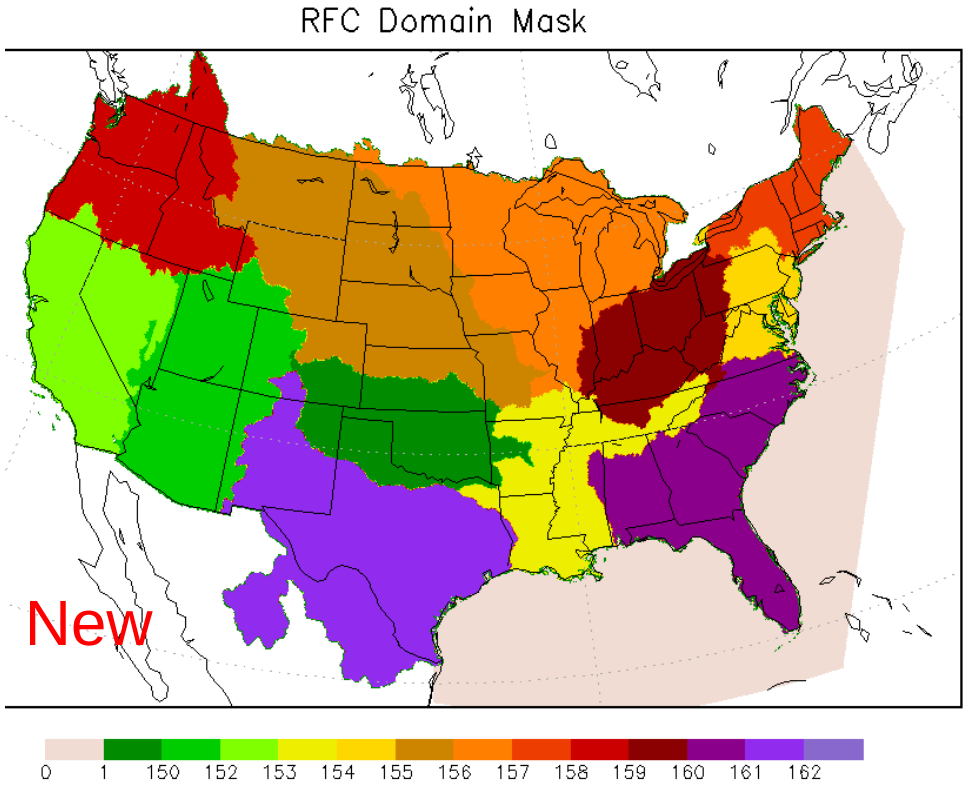




Bias=1

Modified mosaicking/new domain mask for ST4/URMA



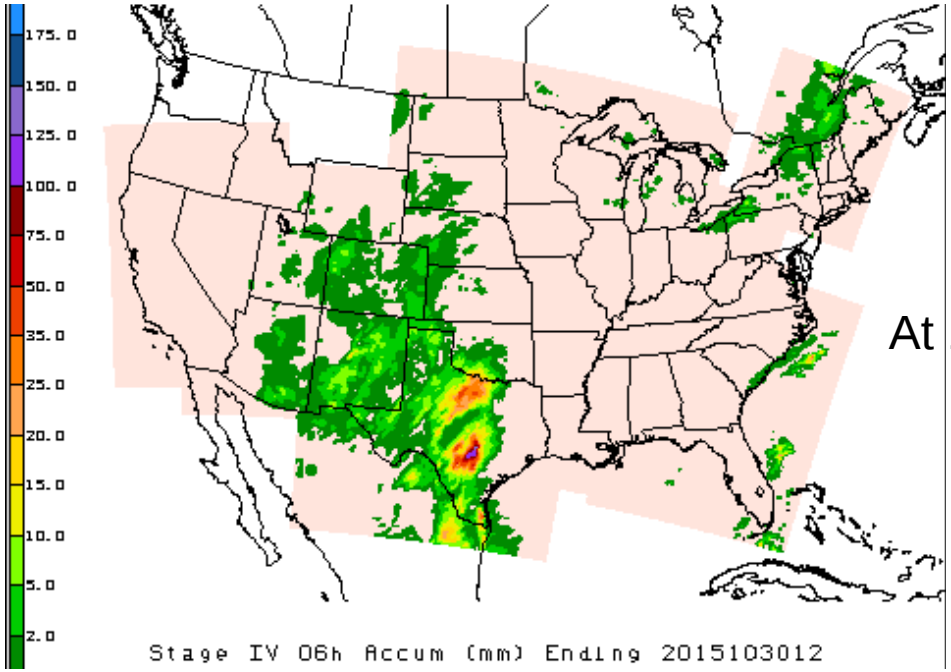


- RFC domain area filled by that RFC's data alone; use any available data for Gulf of Mexico/Atlantic
- Impose "missing data" mask off the Pacific Coast
- RFCs have started to cover the Great Lakes at the request of GLERL
- WGRFC domain now extends to part of Mexico

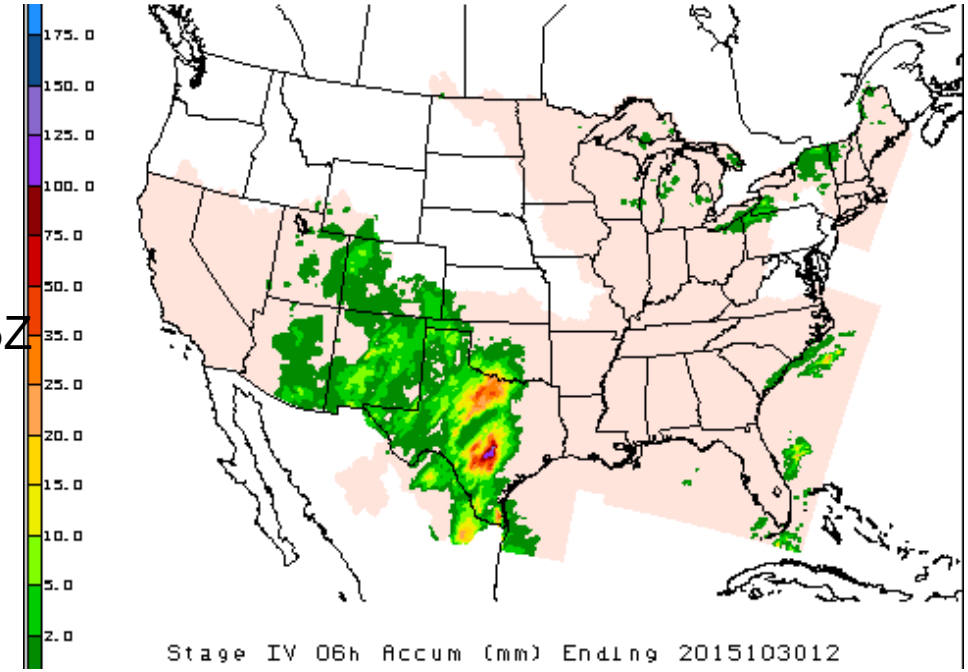
Stage IV/URMA 6h ending 12Z 30 Oct 2015

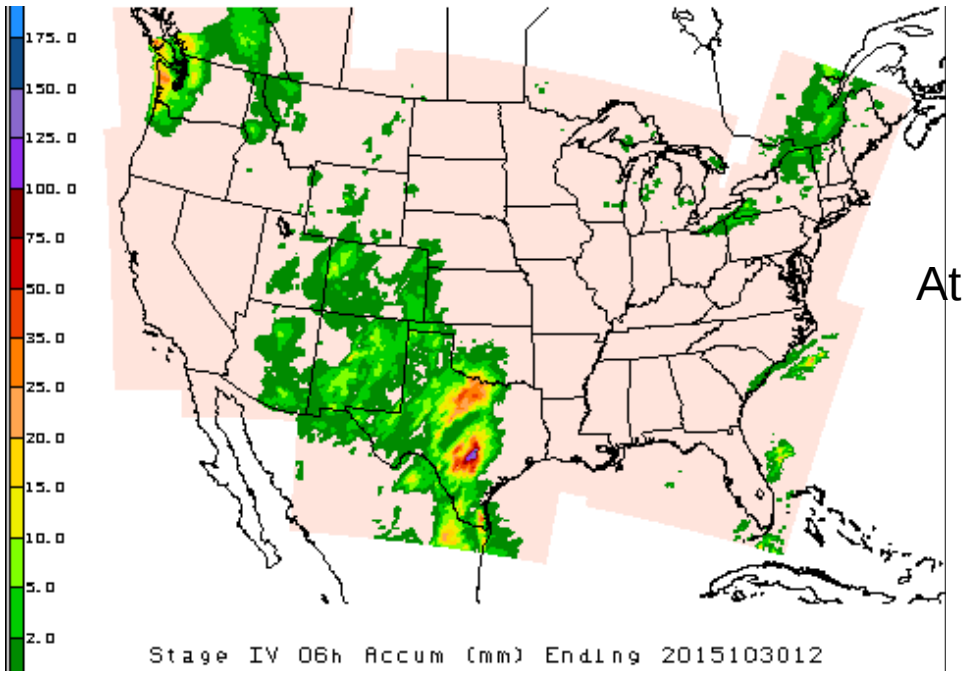
Prod

Para

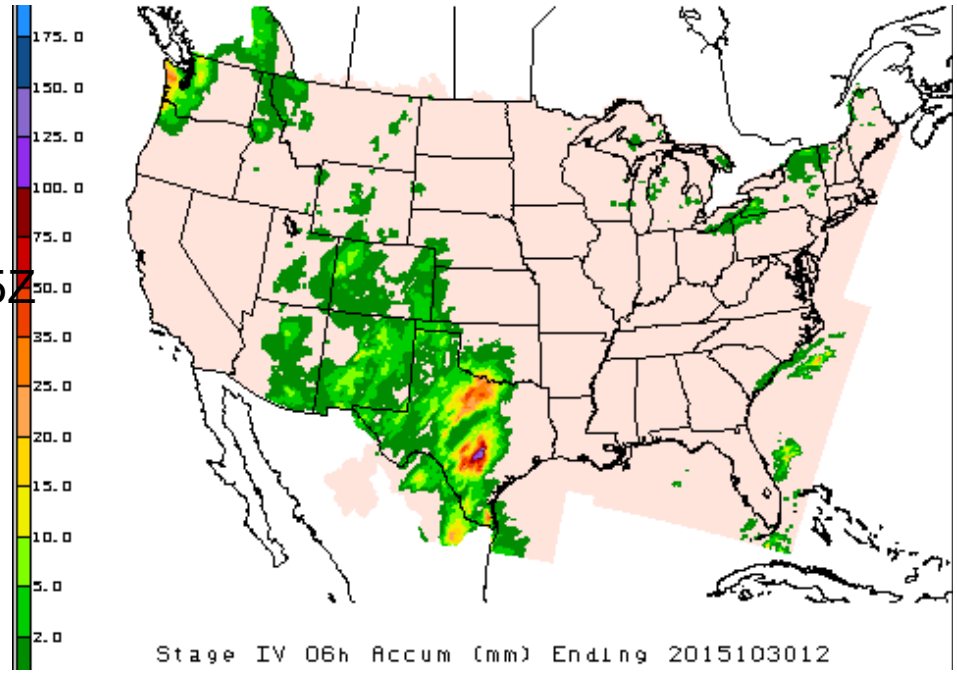


At 14:45Z



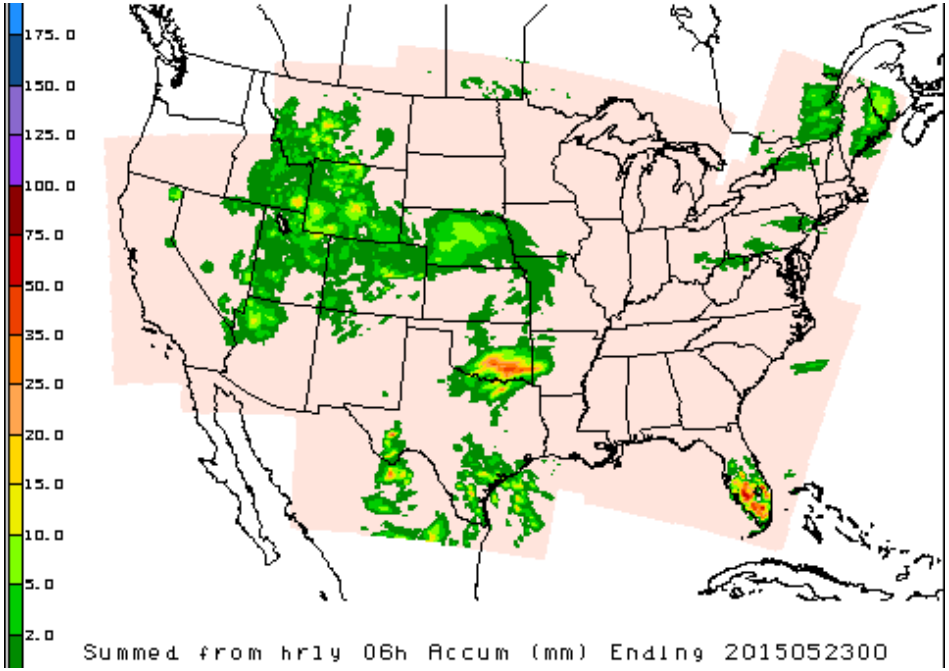


At 20:45Z

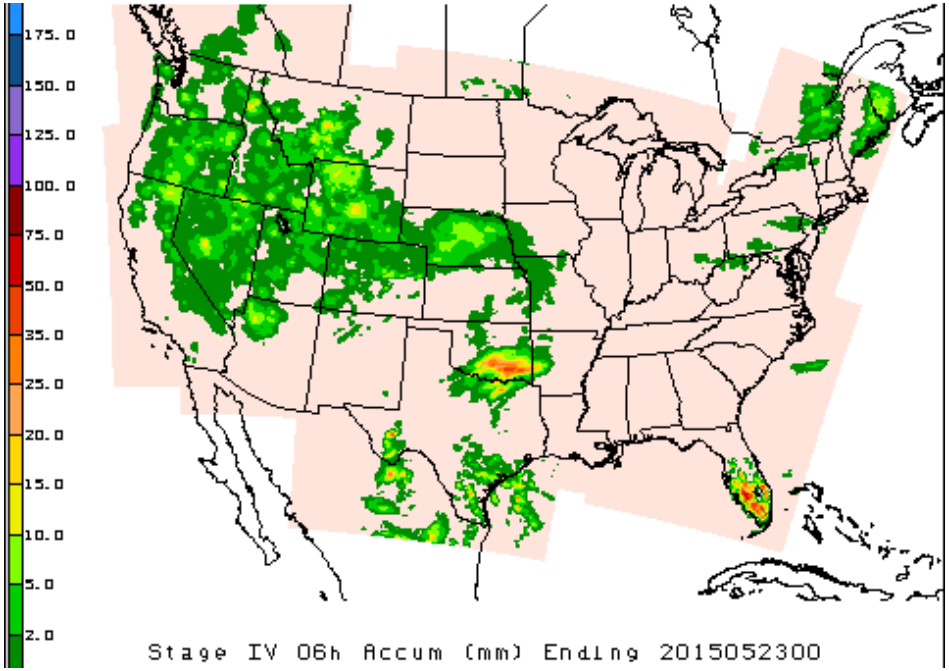


Why exclude input from CNRFC for hourly Stage IV:

Summed from hourly Stage IV

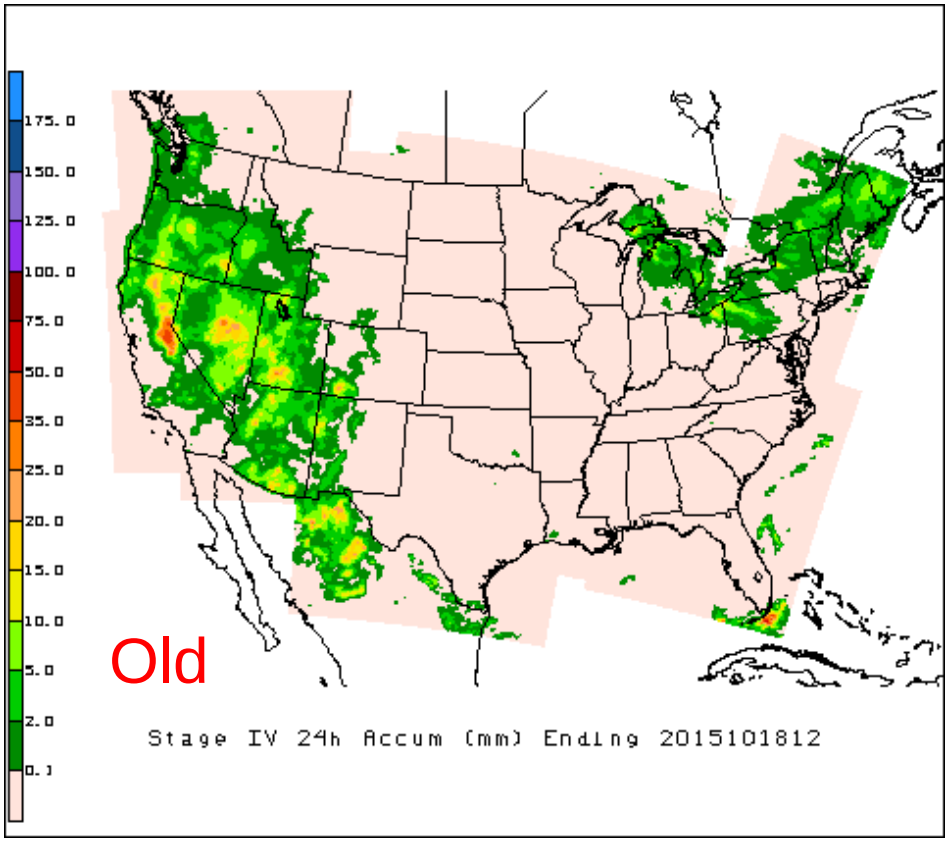


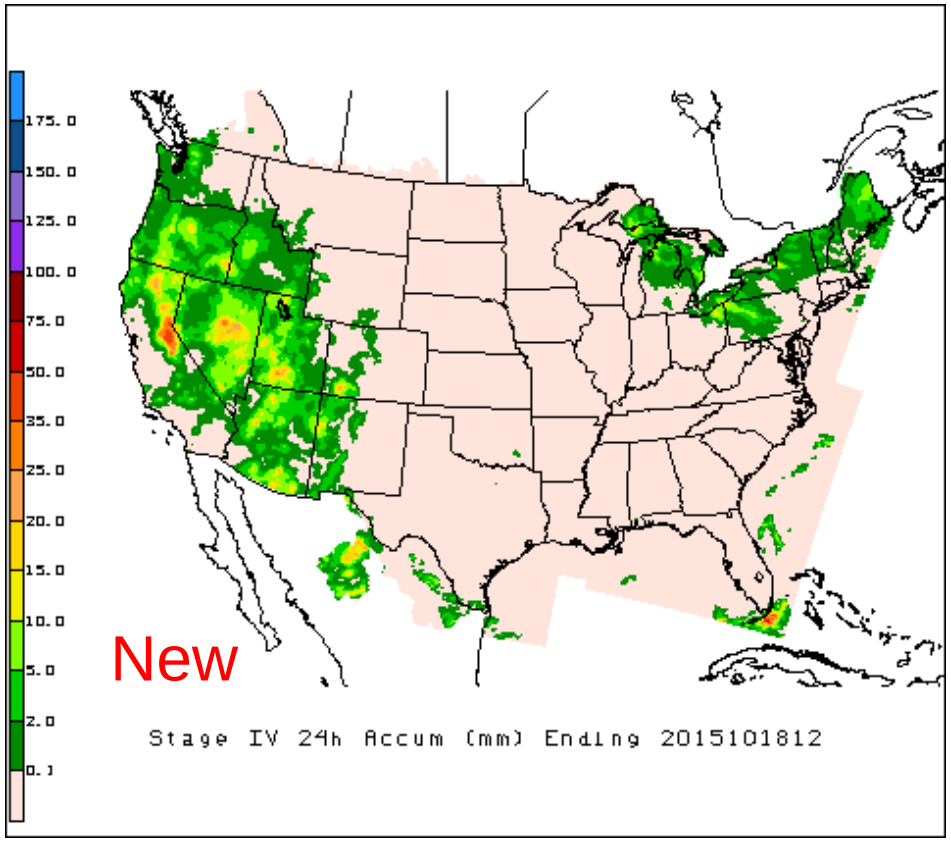
6-hourly Stage IV



6-hourly accum ending 00Z 23 May 2015

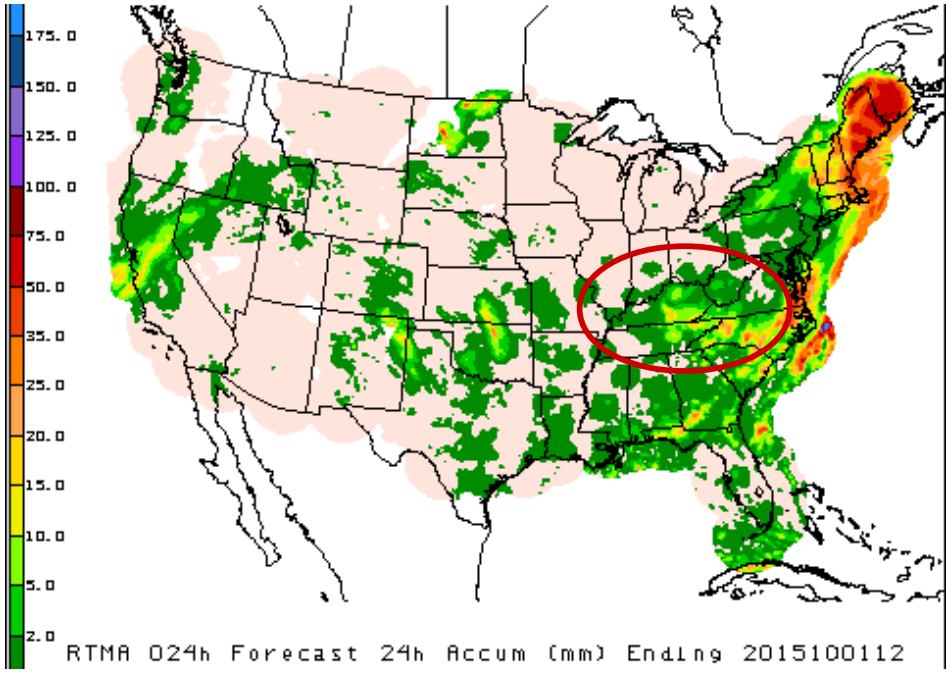
Why set area off the west coast to “missing” for Stage IV/URMA:

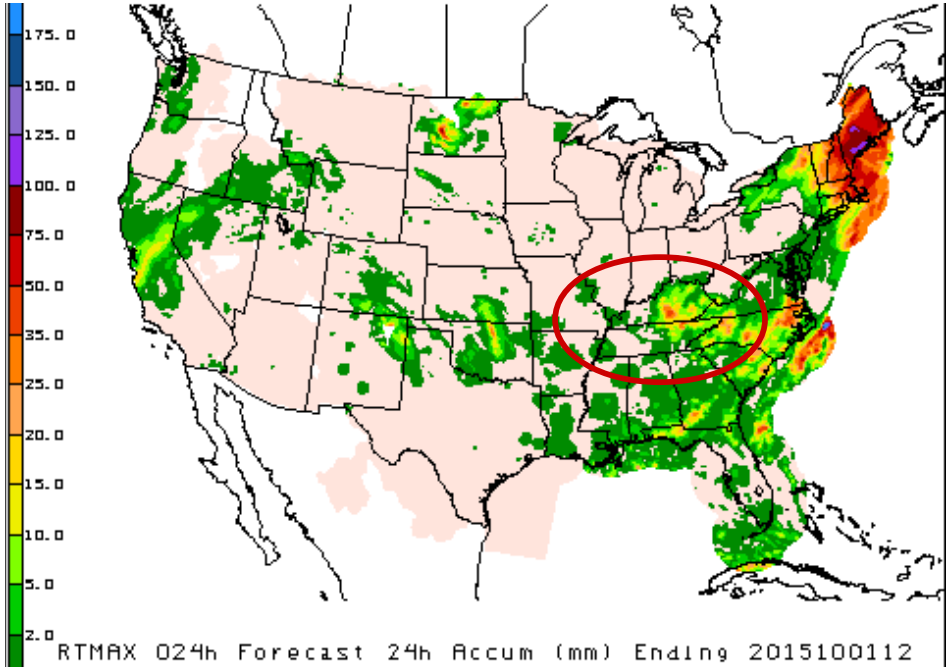


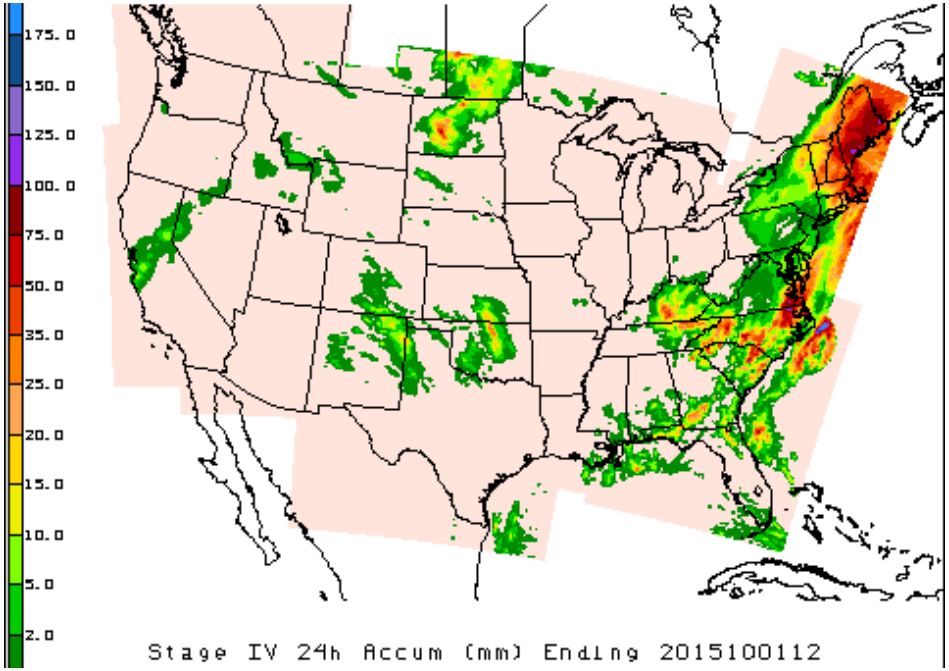


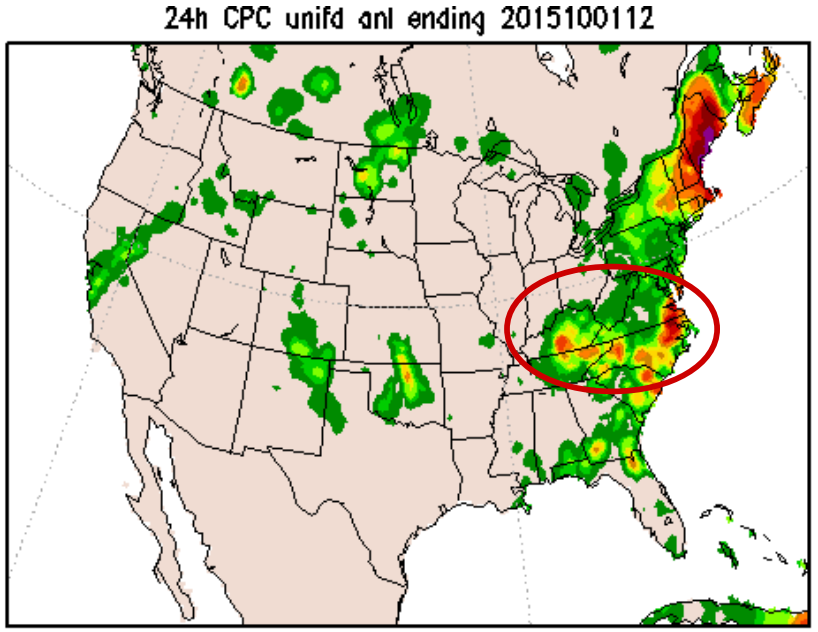
Input QPEs do not have a missing data mask. Imposing the “missing data” mask off the west coast removes the ambiguity.

20151001: RTMA vs. RTMAX: RTMAX slightly better

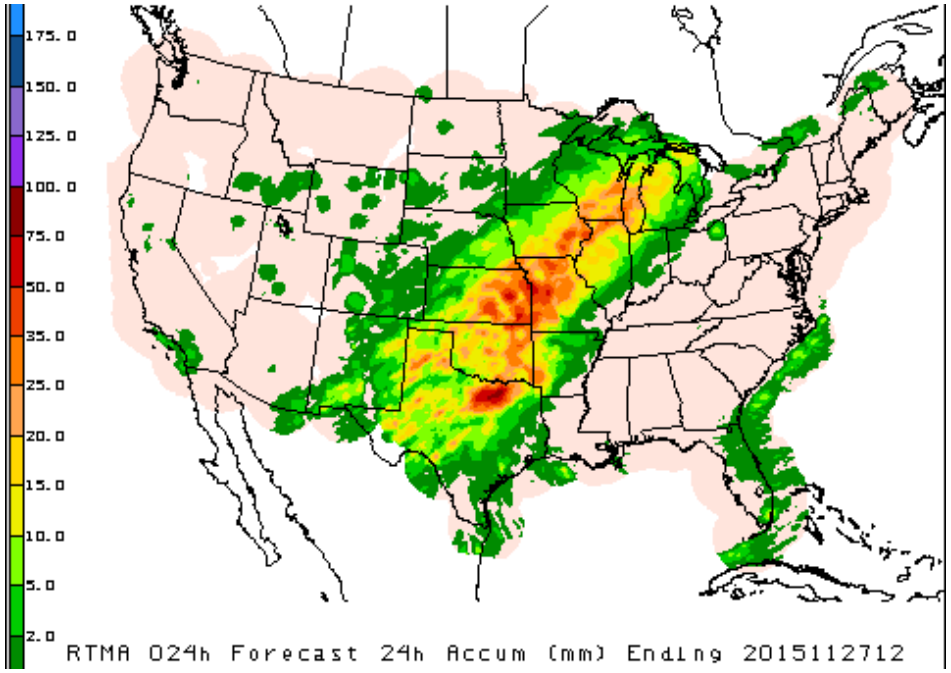


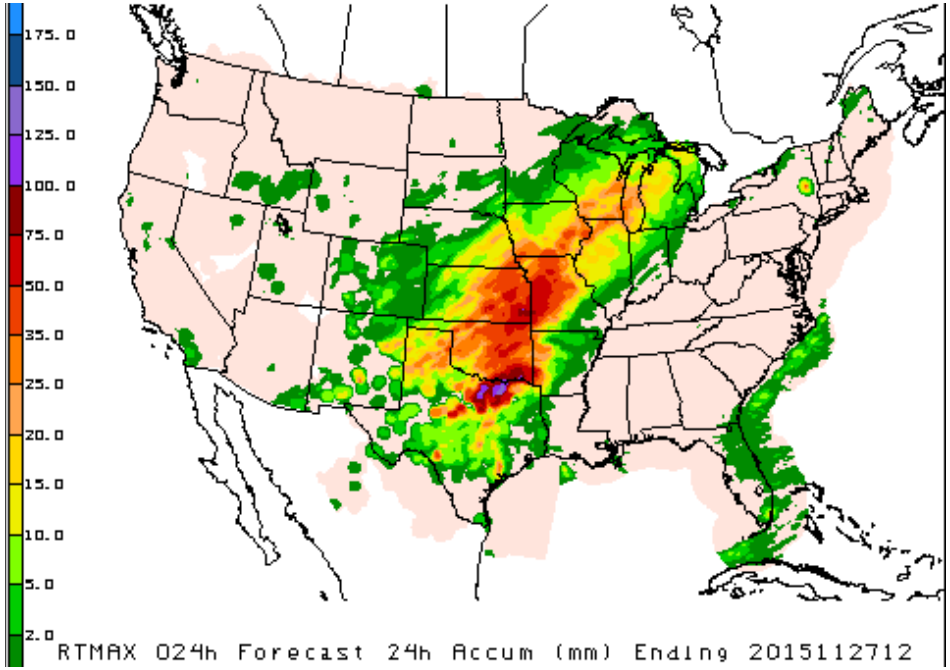


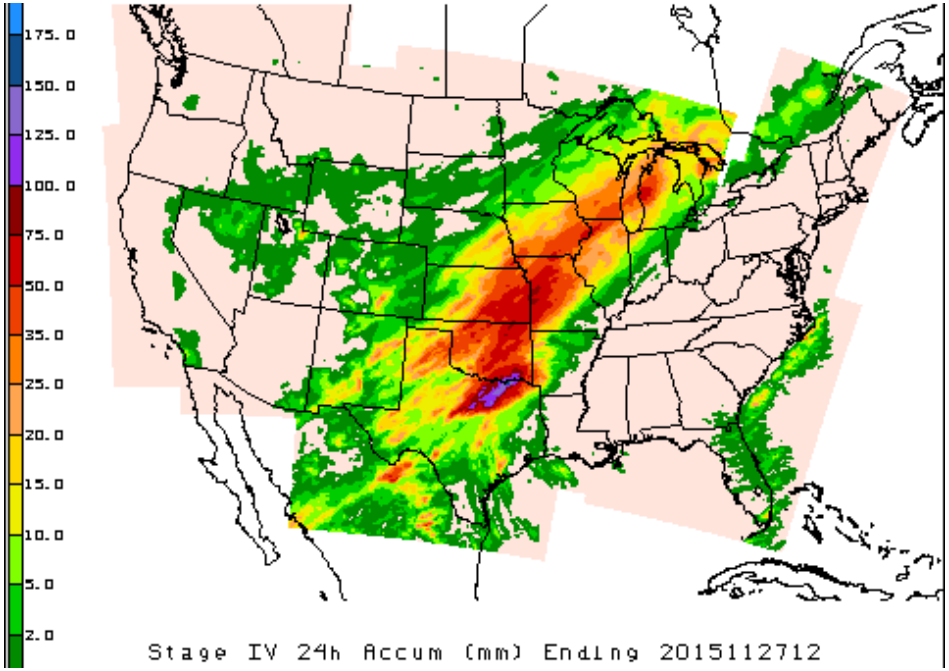


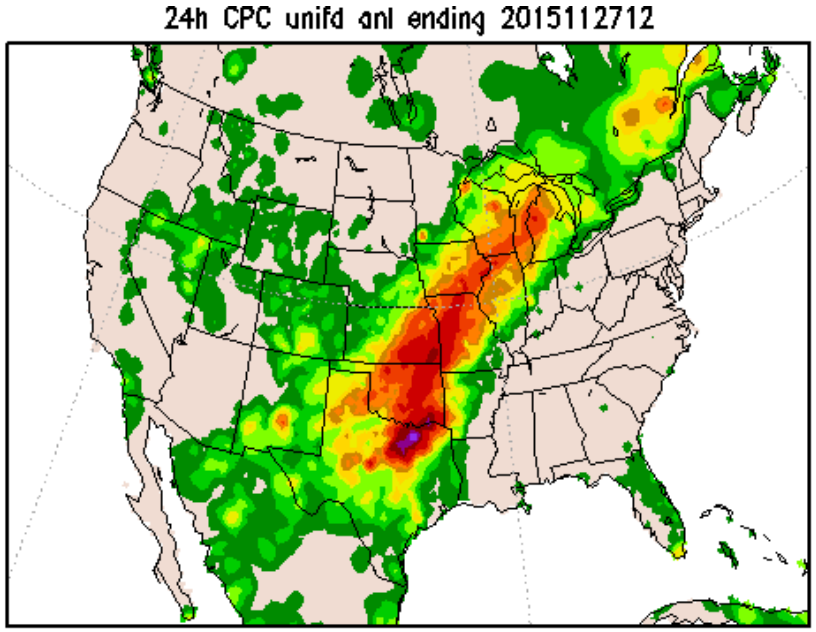


2015112712: RTMA vs. RTMAX: RTMAX better (ST2/ST2x close)

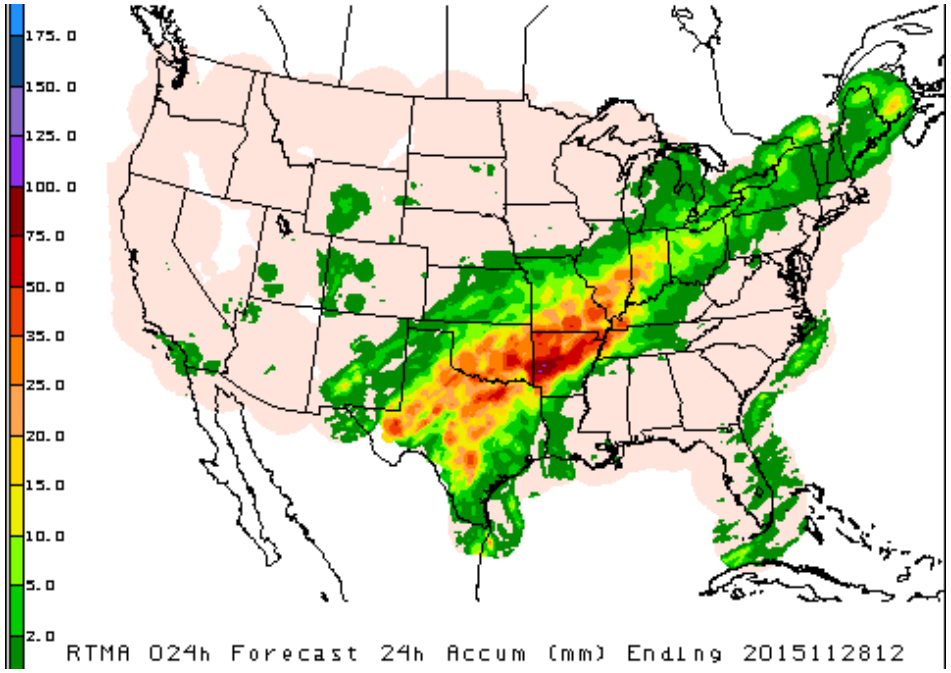


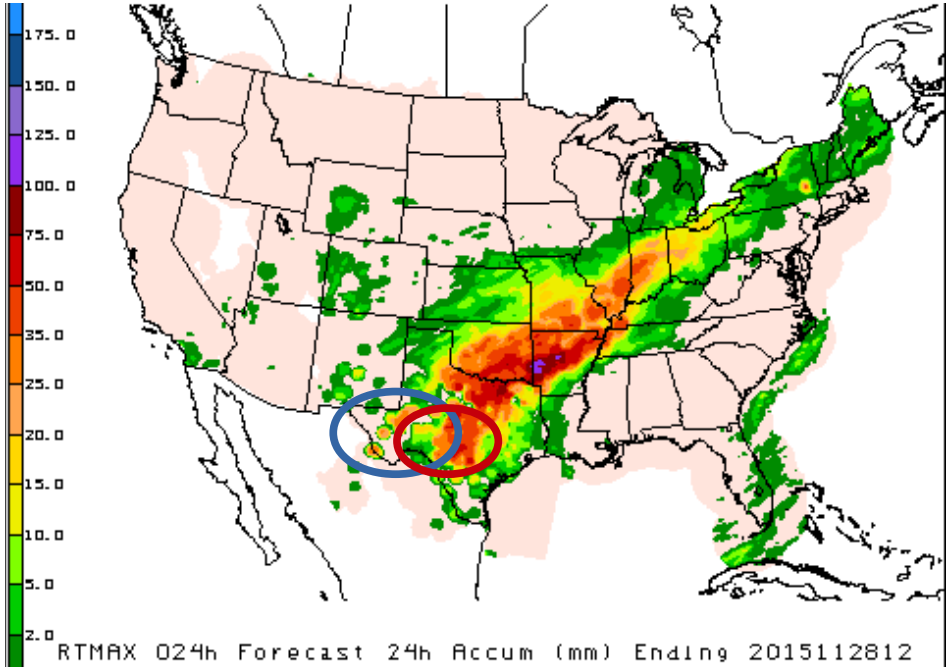


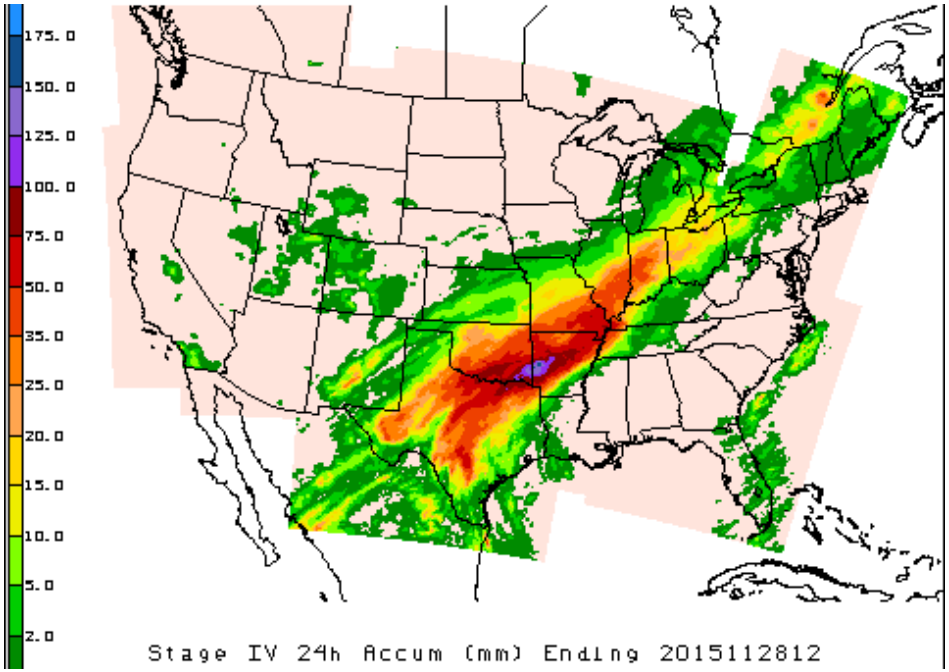


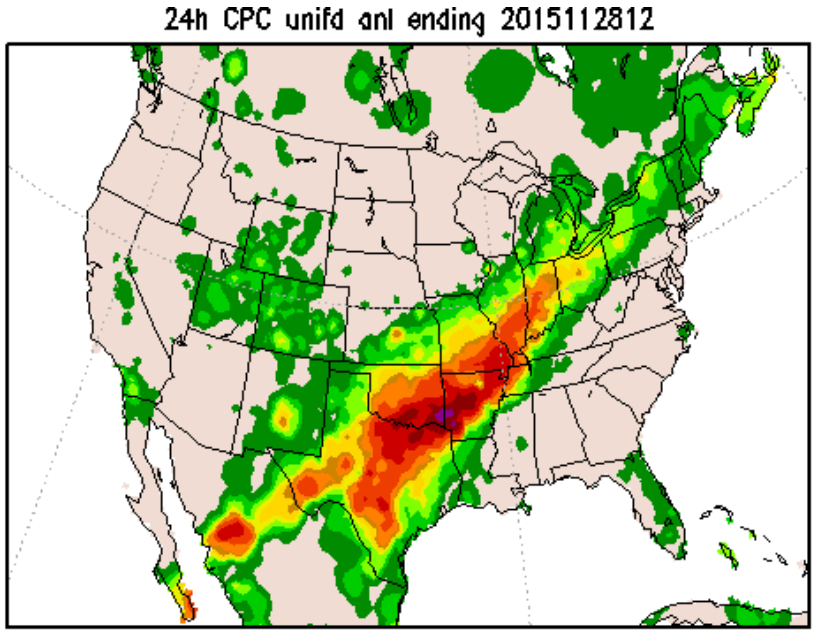


2015112812: RTMA vs. RTMAX: mixed good/bad (ST2/ST2x close)

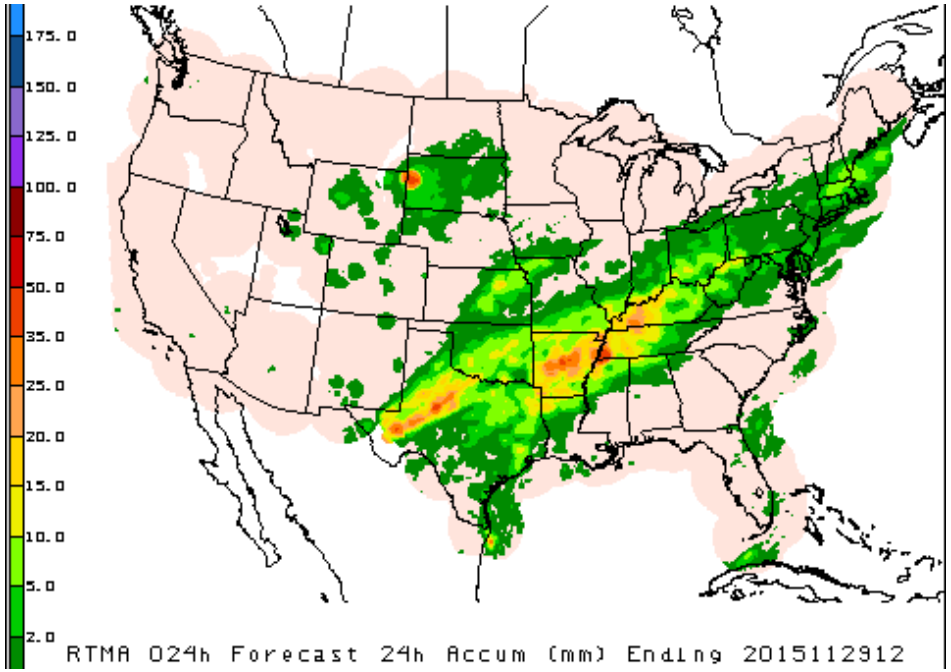


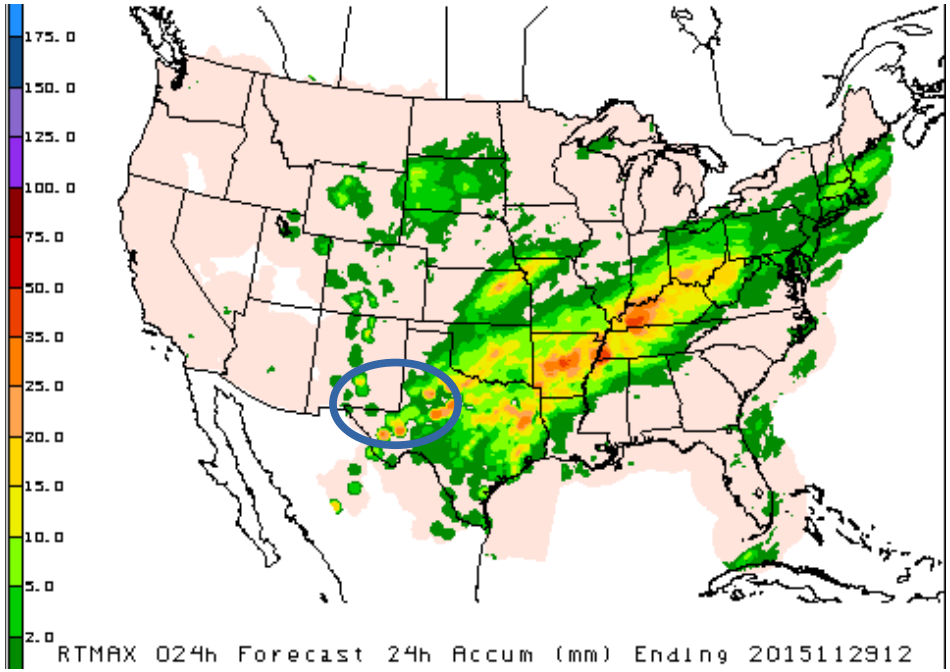


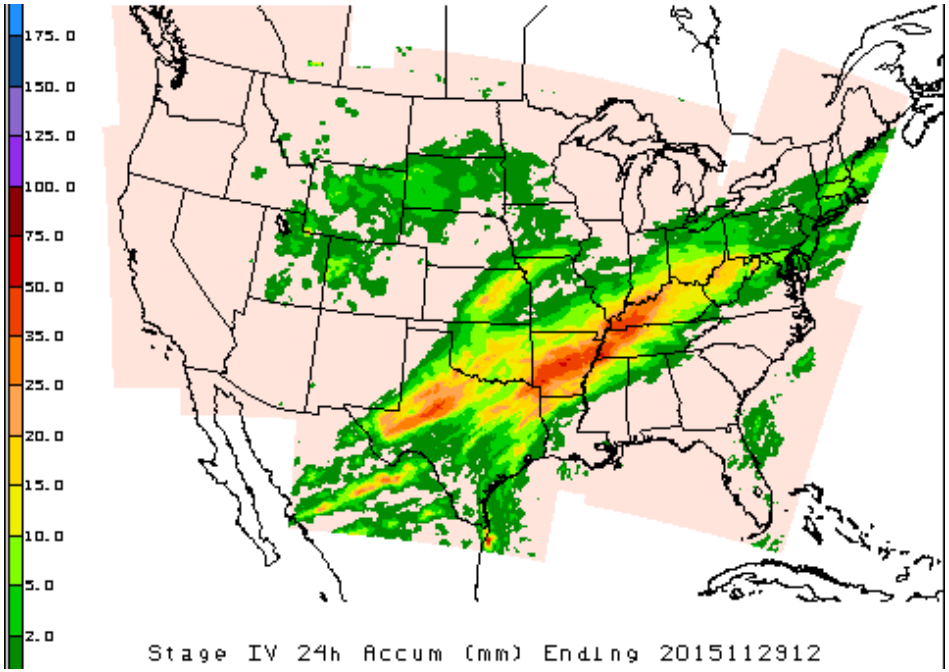


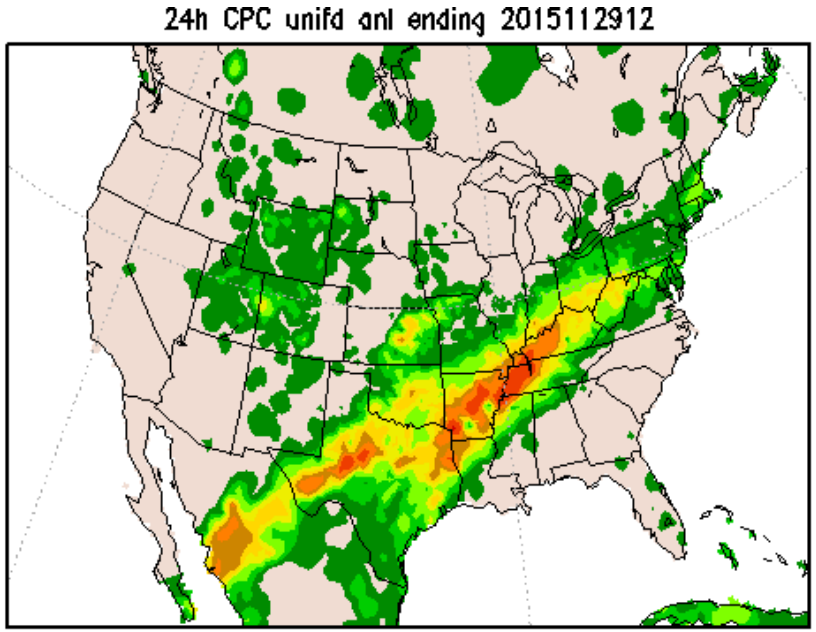


2015112912: RTMAX worse, due to bad erly ST4 (ST2/ST2x close)

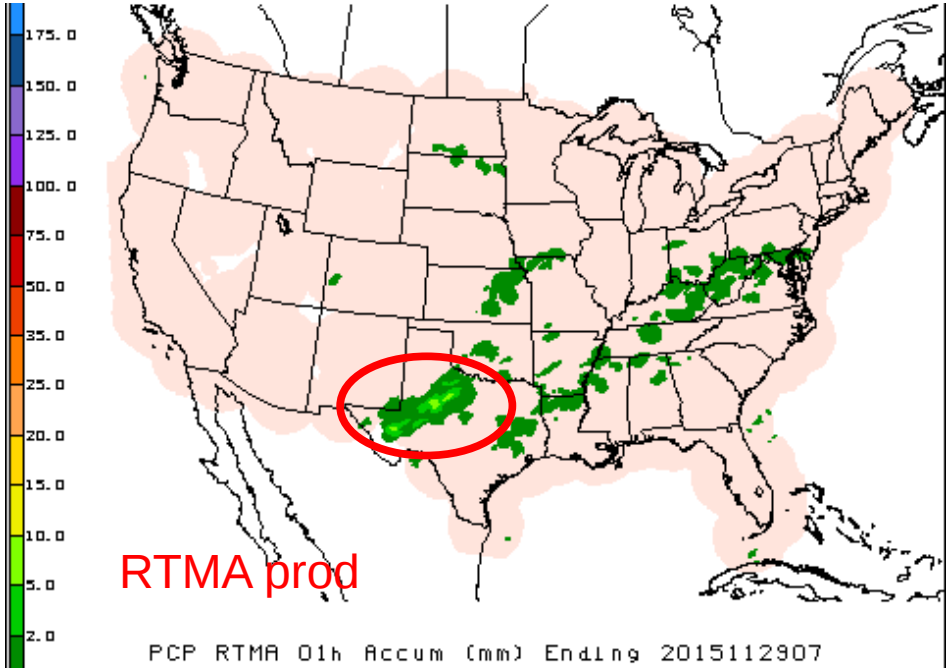


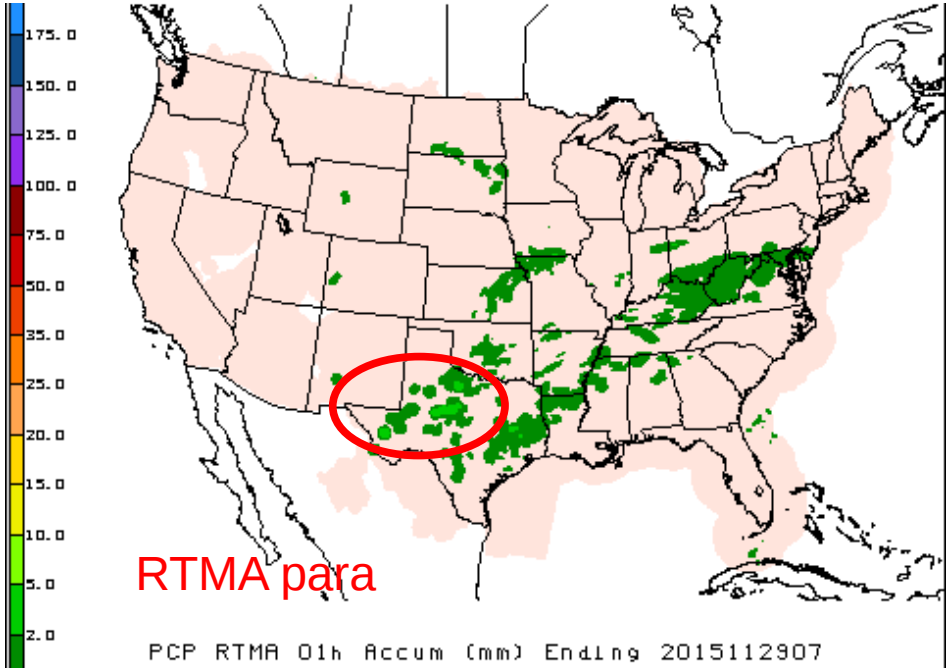


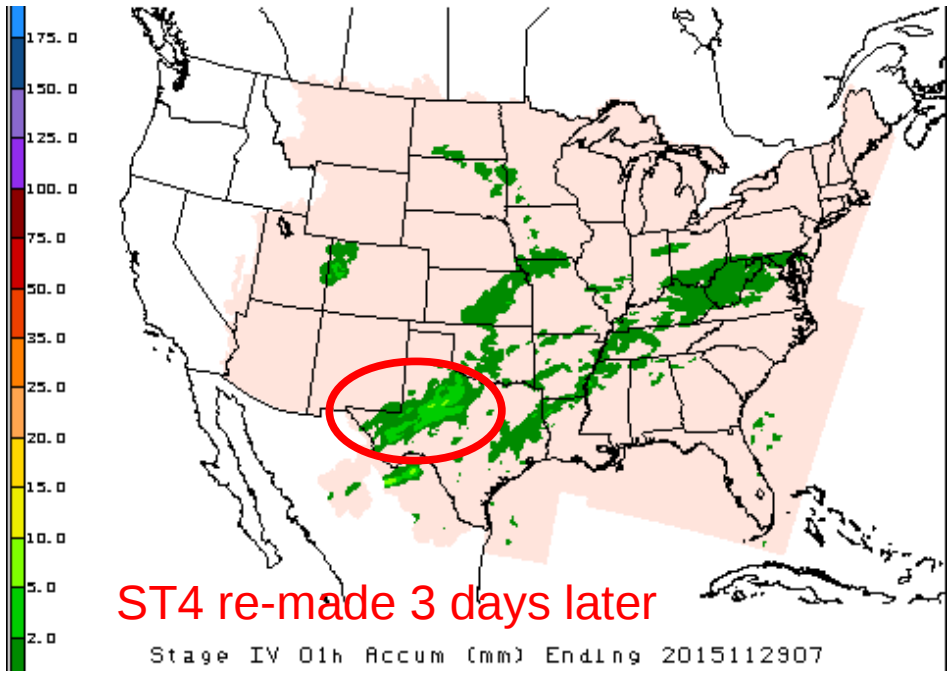


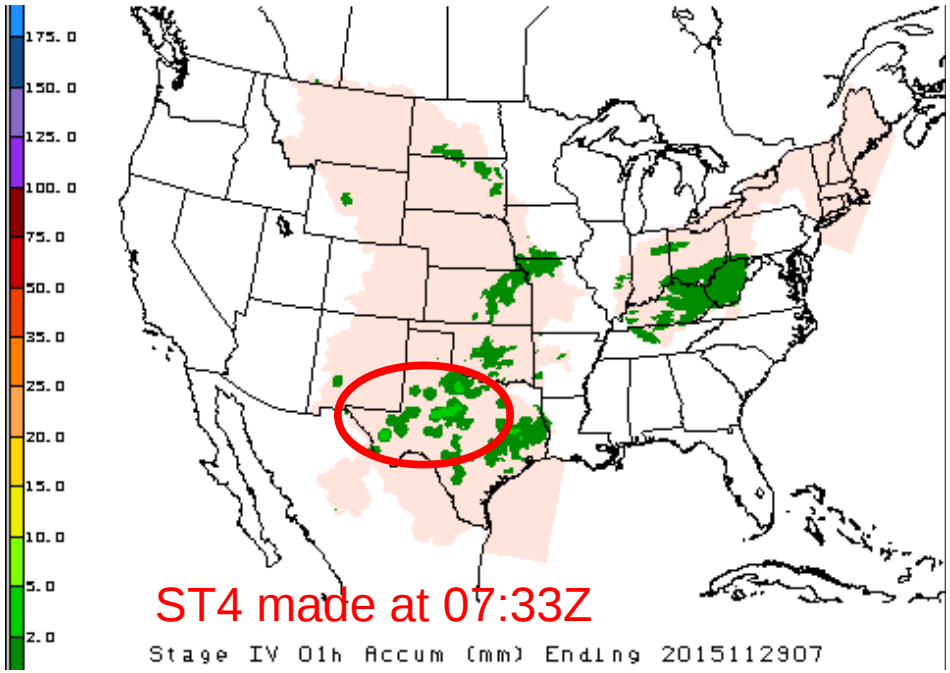


07Z 2015112907: occasionally early ST4 worse than early ST2

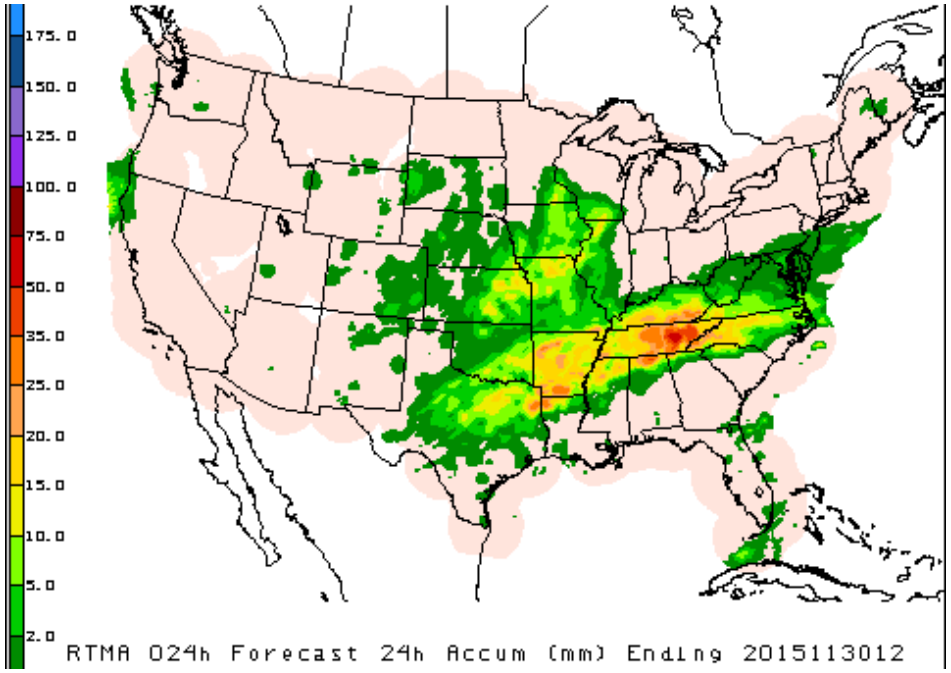


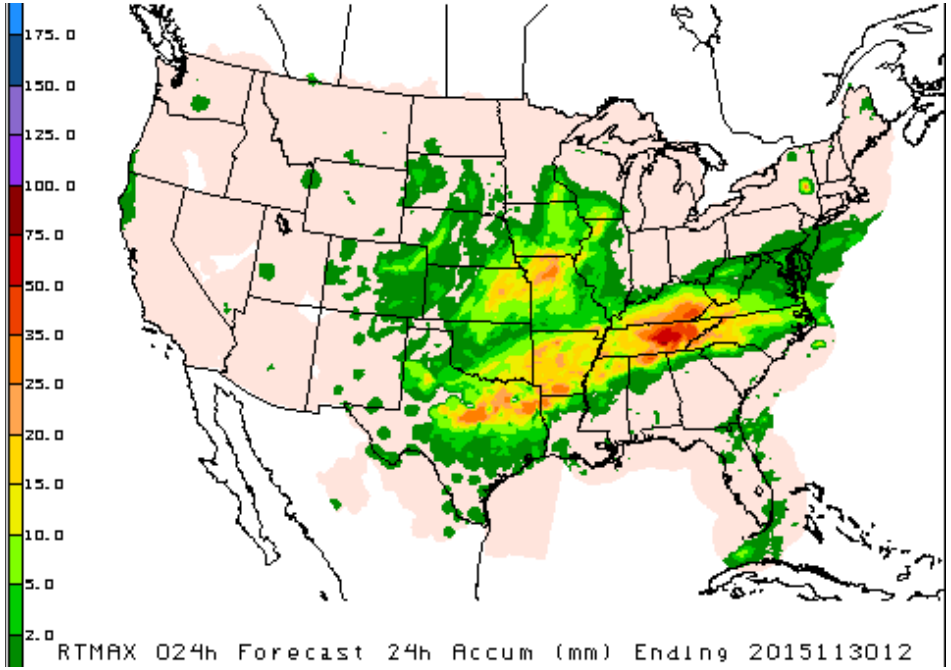


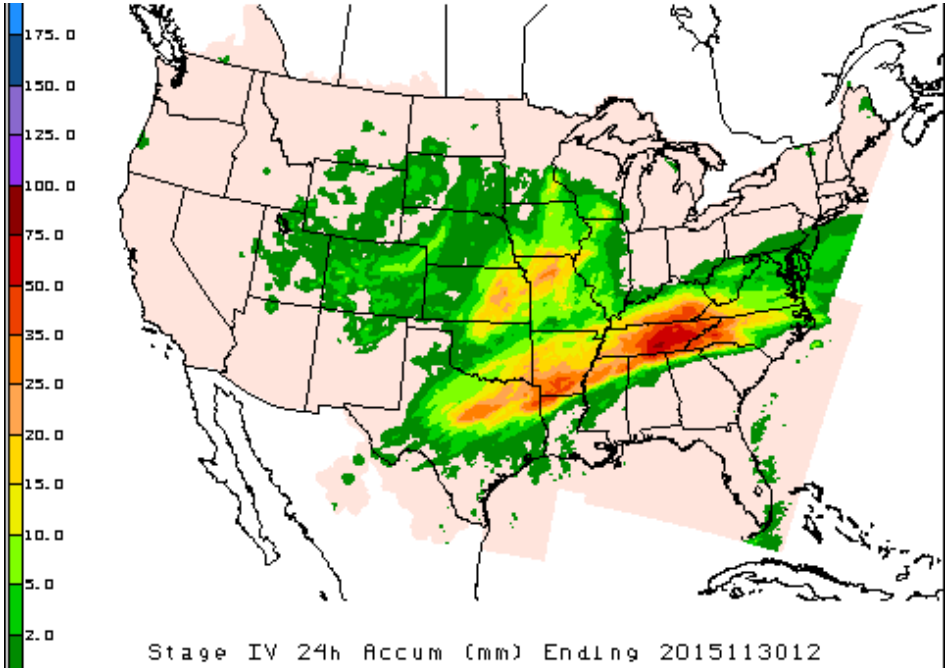


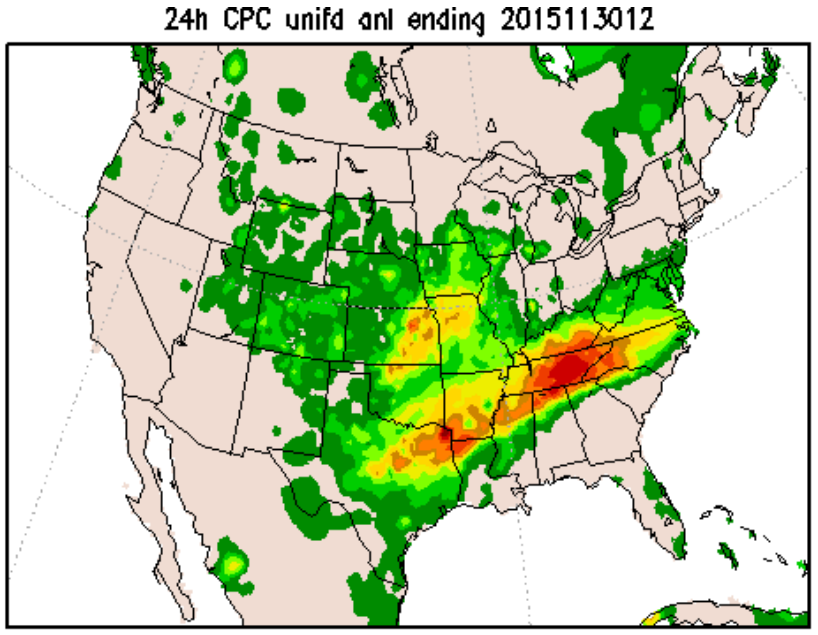


24h ending 2015113012: RTMAX better, due to erly st4 (ST2/ST2x close)

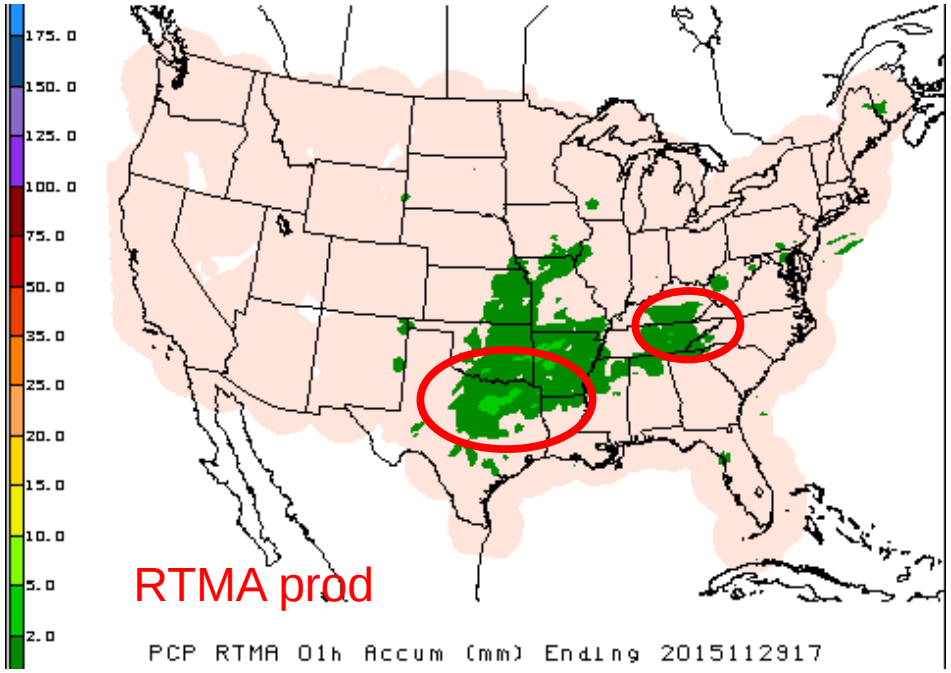


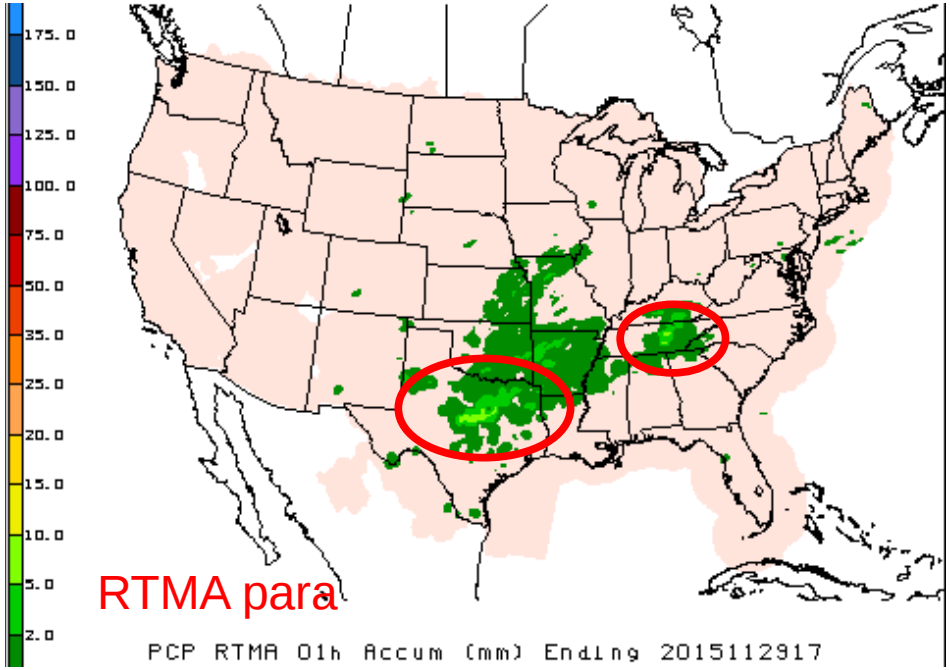


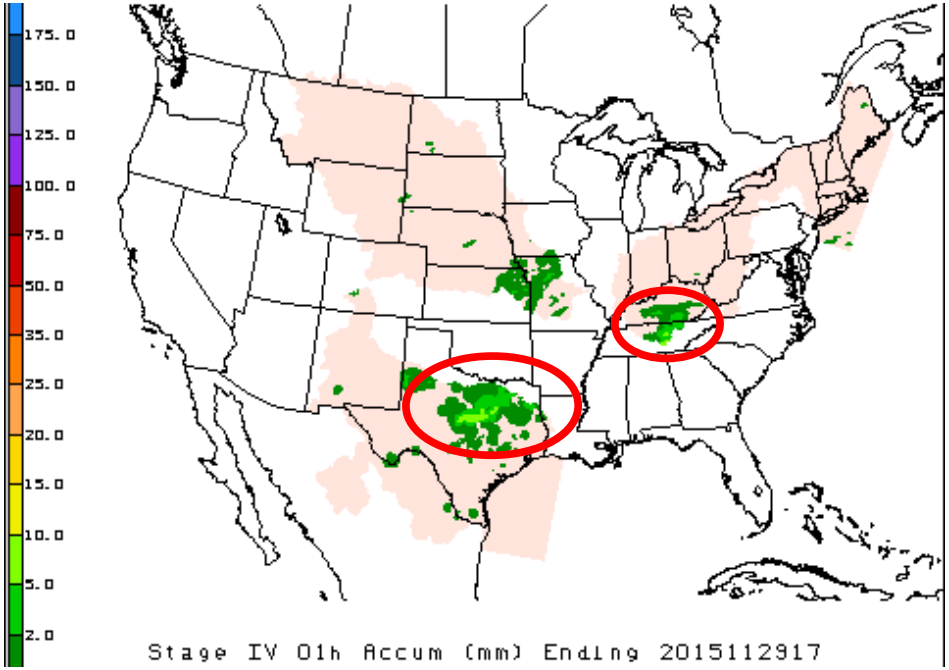




17Z 20151129: RTMAX better, from contributions of early Stage IV

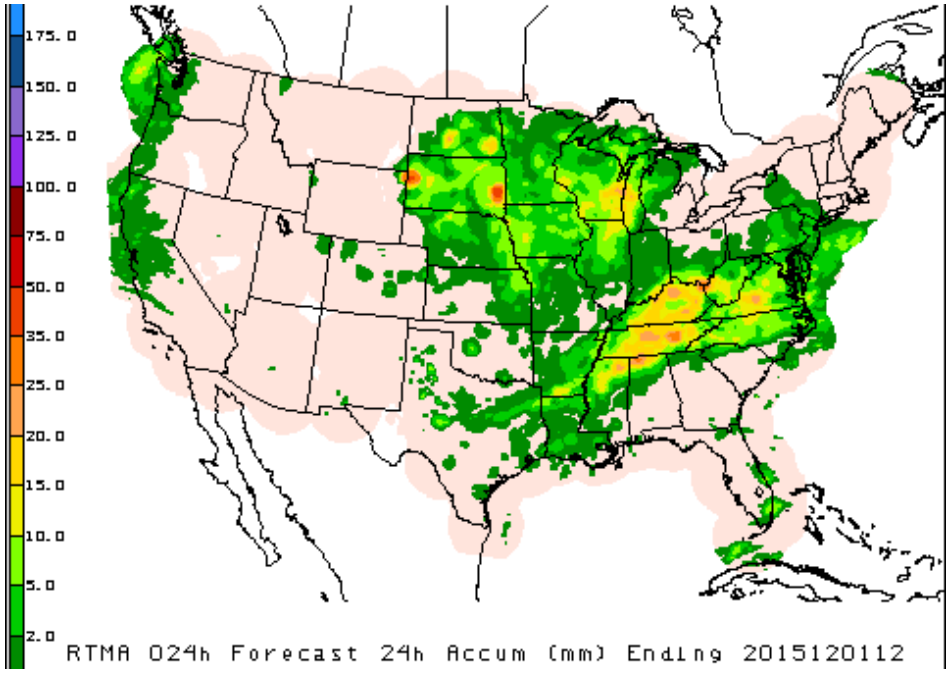


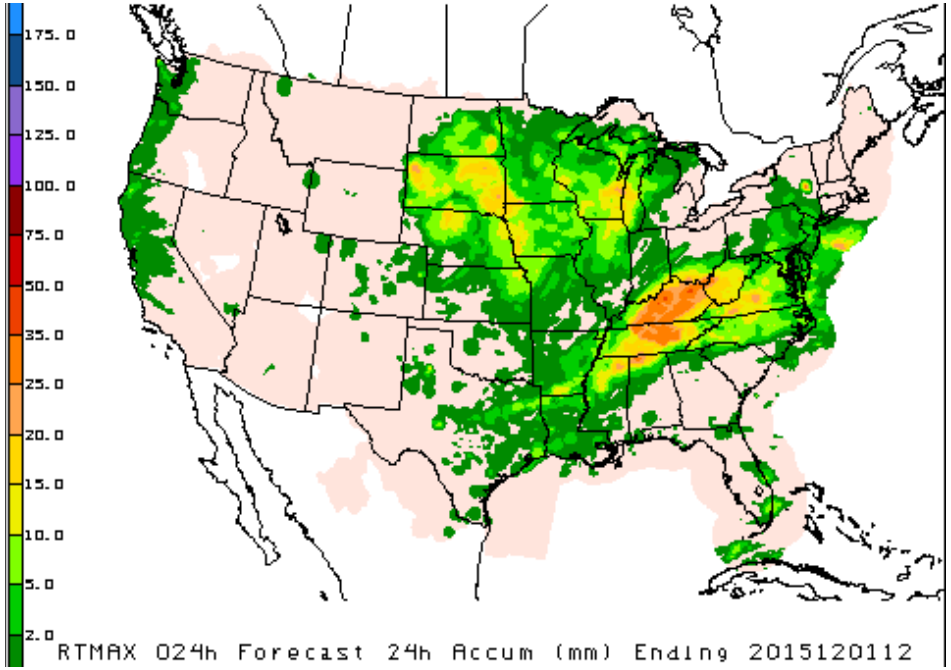


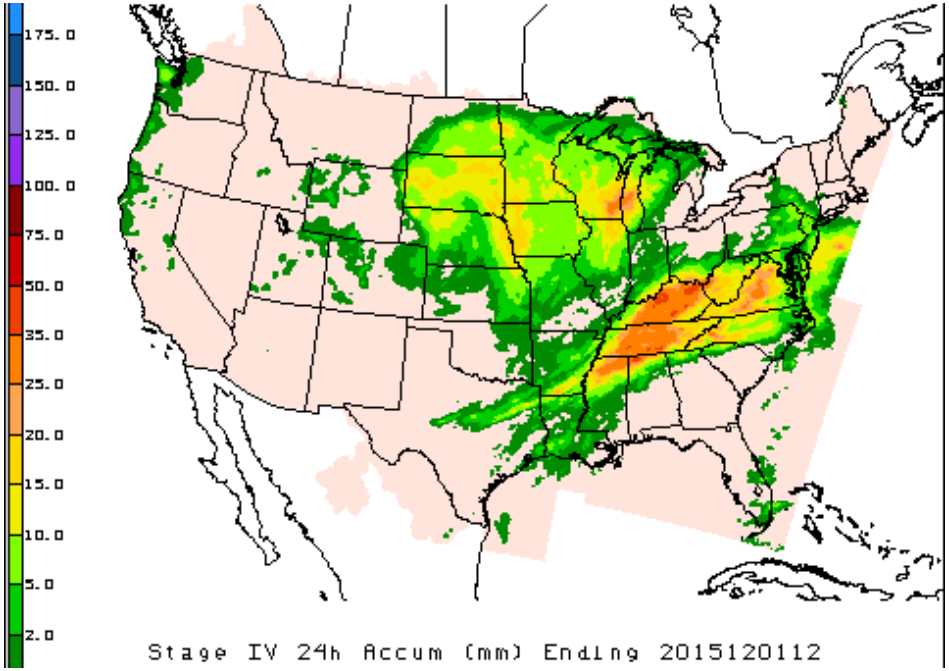


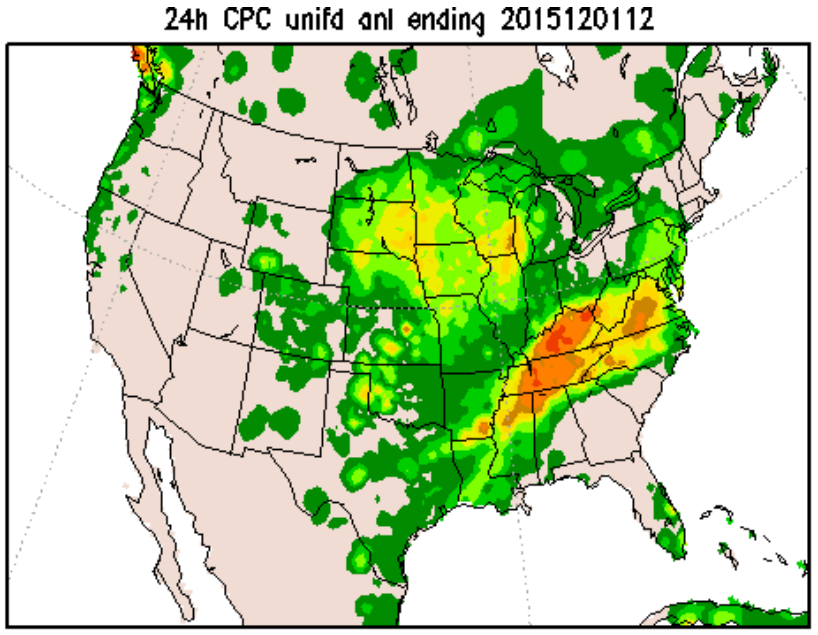
At 17:33Z 29 Nov, the first Stage IV mosaic for 17Z was run with input from MB/WG/OH/NE RFCs, and was used for the precip RTMA.

24h ending 2015120112: RTMAX better, due to erly st4 (ST2/ST2x close)

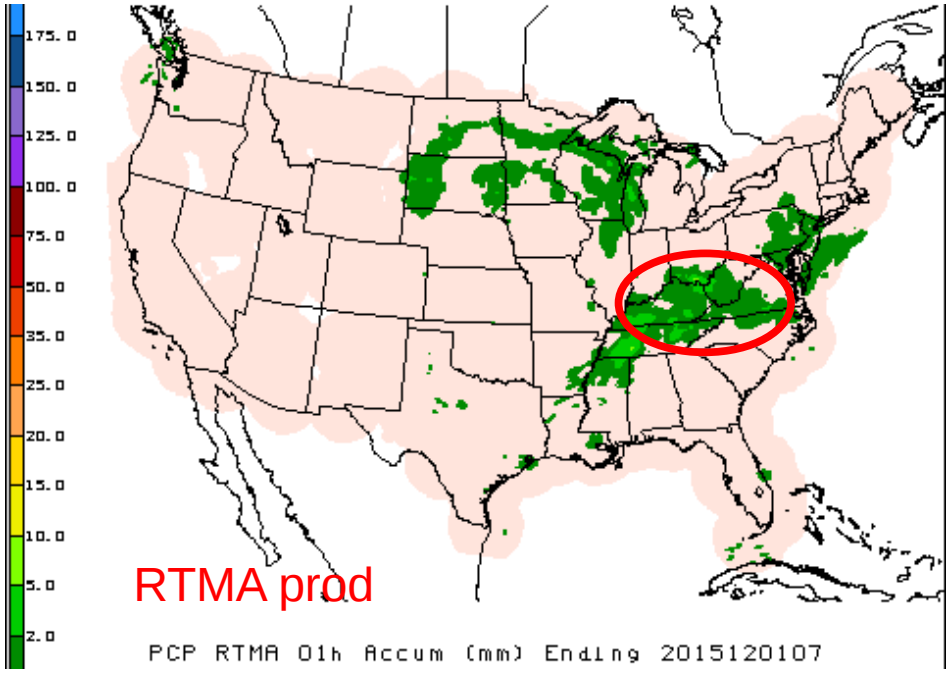


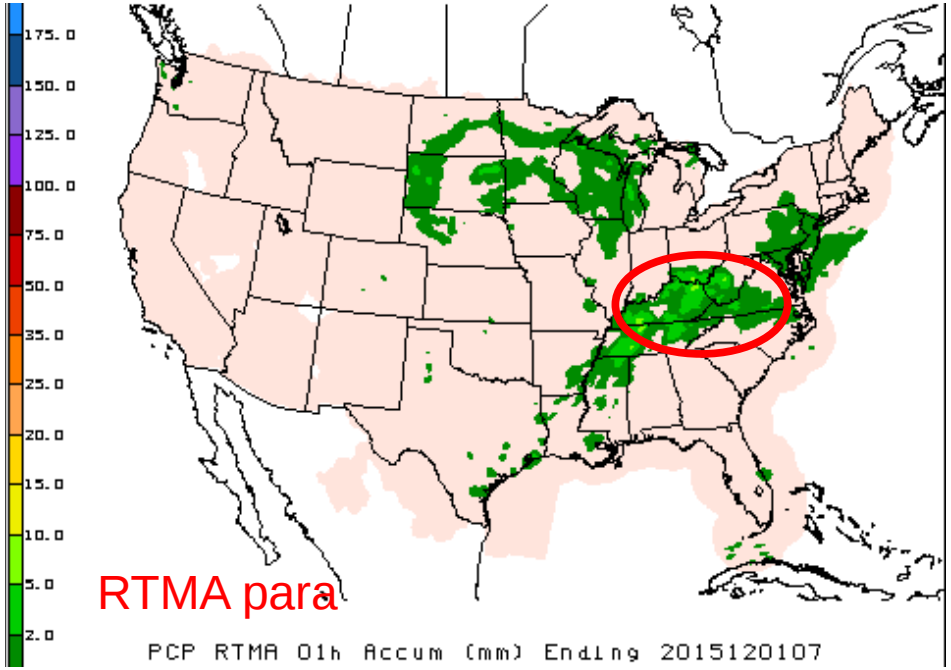


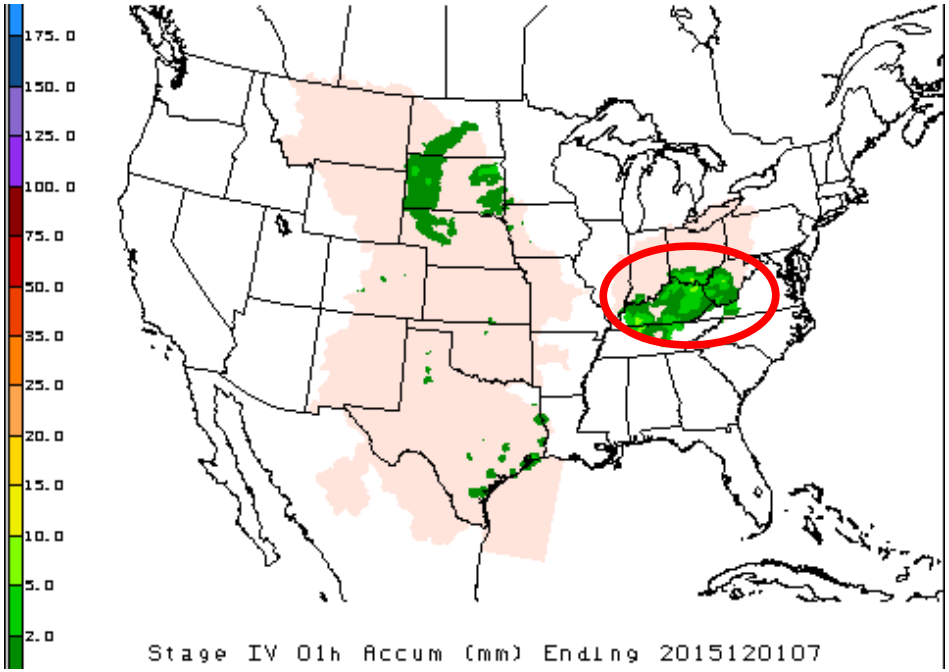




07Z 20151201: RTMAX better, from contributions of early Stage IV







At 07:33Z 1 Dec, the first Stage IV mosaic for 07Z was run with input from MB/AB/WG/OH RFCs, and was used for the precip RTMA.